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TREATMENT OF DISEASE

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THE
ENCYCLOPEDIA
OF HEALTH

VOLUME VII

MODERN METHODS OF HEALING

*Foreword
by the Editor*

ONLY on rare occasions does a modern civilized being live out his life completely; barring accident, he is instead carried away by some disease. Every death from disease definitely indicates a defect in our knowledge. Such defects will be remedied when we develop a dependable science of healing and a saving science of living.

Some day the great truth will be recognized that vigorous, vital health is the normal prerogative of every human being. Whenever there is a deviation from this condition there must be some preventable or remediable cause for it. When this self-evident fact is once recognized the cure of disease will be comparatively simple—we shall ascertain the cause and remove it; then the body will automatically cure itself.

Some day the knowledge of health and healing will be so universal that, through highly developed, intelligent methods of living, of preserving and restoring vitality, men will live on to active and happy old age with no specific bodily infirmities and pass into the unconsciousness of death with calm serenity.

Health
Education

But, when this fortunate day arrives it will be because the energy now given to the treatment of disease by medicine has been largely turned to the prevention of disease.

Whether troubles be physical or mental, or whether of any other nature, it will be found easier to avoid than to correct them. The old saying “an ounce of prevention is worth a pound of cure” has always been true and always will be true.

Preventive
Treatment

The previous volumes of this work have been devoted largely to discussions of those factors that have to do with preventing disease—factors that build such health as to leave no room for disease. But important as is the knowledge of what will aid one to prevent disease or further encroachment of disease, there still will be disease for many generations to

come, so the treatment of disease will be required for an equal length of time. The two remaining volumes of this Encyclopedia provide the reader with rational and effective means for combating the ills to which mankind is now subject.

**Superficial
Health
Knowledge**

It has been said that "a little knowledge is a dangerous thing." It is; but only when one accepts a little knowledge as the whole, or does not apply that knowledge rationally. Today almost everyone has at least a smattering of information regarding disease and its cause, and of health and its preservation. One cannot be even a reader of newspapers without becoming exposed to the "dangerous contagion" of a little knowledge regarding health and disease.

Certainly no one would take this knowledge from even the most ignorant layman. The best way to lower the hazard of a dangerously small dose of knowledge is to increase the dose—to give more knowledge. Enlightenment has brought us far from the pitiful plight of people of the Middle Ages. But special knowledge has been too confined to select classes. The phenomena of birth, life and death are universal among all classes. Health and disease are not special states for special people or grades or castes of people: knowledge regarding them does not belong to a select few. Through an absence of knowledge diseases come to one and all alike, and death eventually strikes. So all are entitled to knowledge that will aid them in combating disease and postponing death. Hence everyone to some degree should be able to be his own physician, for prevention or correction of abnormal states of health and ill health. Education along health lines, developing a health consciousness and learning the simple rules of health and hygiene should enable one to get the best out of life.

When the causes of ill health are known, that knowledge itself should make of an individual a fairly competent physician, one capable of bringing about a radical improvement in his own health. For when the causes are known they can be avoided and their avoidance will in itself undo much of the health damage they have created.

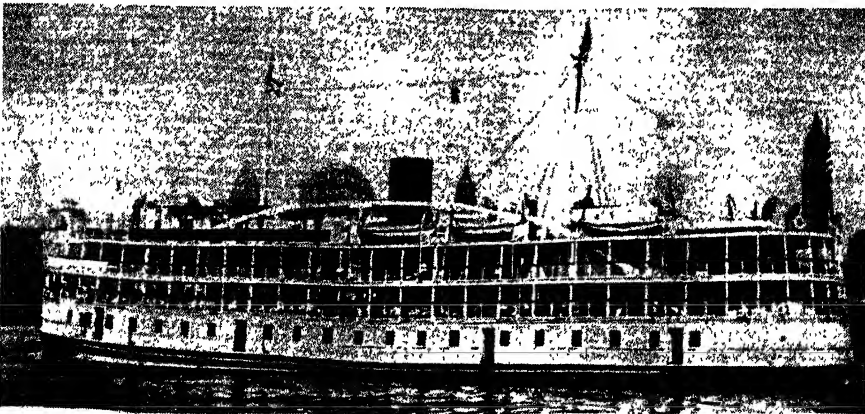
Some of the damage produced by these causes has or may have been so pronounced that further assistance is necessary in order to restore normal or previous conditions, or conditions that permit life to continue and to be not only bearable but

enjoyable. Energy may have become exhausted, organs may have all but ceased functioning or may have developed an abnormal functioning, vitality may have been heavily drawn upon or it may be prevented from manifesting itself save for the maintenance merely of life itself. Accidents, special strains and stresses, infections may have produced special effects. In some of these conditions removal or avoidance of the cause or causes may not be sufficient to restore previous states. Nature may need assistance. Whenever a cure is brought about, whenever the health is improved to even the slightest extent, it is Nature that accomplishes the change. But Nature often requires aid.

The mere discontinuing of detrimental habits may not be sufficient to enable Nature to bring about her greatest changes toward restoration of normality. A highly important positive work of healing must be instituted, not ignored or neglected. The various methods of physiotherapy described in the previous volume are methods of restoring the sick body rather than of keeping the well body in health. The application of these various curative measures to the specific disorders of the body takes up the present and the final volumes of this work.

Disease is well defined by the Standard Dictionary as "any failure in or perversion of normal physiological action in the material constitution of functional integrity of the living organism."

**Aiding
Nature in
Restoring
Health**



PHOTOGRAPH EWING GALLOWAY

This floating hospital is maintained by a New York City charity organization to provide sea trips for sick children and their mothers. Within twelve years it has provided outings for 486,508 patients.

Illness is a synonym of disease. Sickness is another synonymous term, though also used in a narrower sense.

A further slight distinction in these words lies in the fact that we say a person is ill or sick when he is aware of his abnormality and is made uncomfortable, weak or suffers pain or incapacity because of it. But by its definition a man may be diseased and not be aware of it. Many diseases, however, in their early stages give no clear-cut symptoms by which the subject is made aware of his disease, yet such abnormal processes may have been long at work before they became apparent.

Since by its definition disease is any failure of the normal physiological processes, it is apparent that every person who is not normal or every physiological function of every person that is not in normal working order is therefore diseased. Hence to understand what disease is we must first understand what normal physiological functioning is. Obviously this means normal health. But what is normal health?

What is
Normal
Health

Here we must admit that not many persons would agree as to just where to draw the line above which health or physiological functioning should be called normal and below which it should be called abnormal or said to be diseased.

It will help us to understand the nature of the problem to cite some parallel cases. Thus we might ask the citizens of any community to name the rich men and the poor men of the community. It is unlikely that any two lists submitted would be alike. Different people would draw different lines between the condition of financial riches and financial poverty. Or we might inquire which were the strong and which the weak men in a given group. Again the lists submitted would show a different basis of judgment as to what should be considered strength and what should be considered weakness.

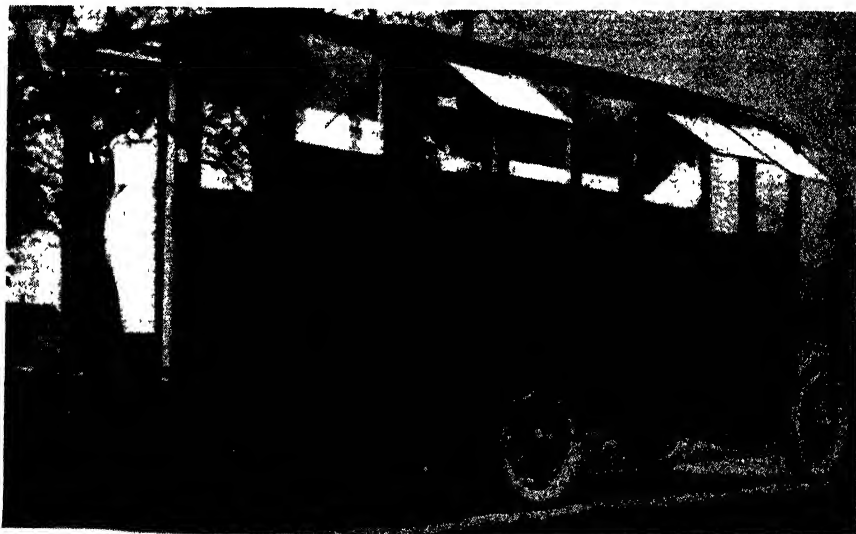
But perhaps the best example would be to ask which people of a given community were to be considered intelligent and which ones stupid. There we get the closest parallel to health versus disease because the basis of judgment is similarly complex. Some would set down as intelligent only those who had book knowledge. Others would judge intelligence by business and financial shrewdness and success. Others would be greatly biased by agreement or disagreement with their own

opinions on political, religious or social questions. There are obviously different degrees and different kinds of intelligence.

Likewise there are a great many phases of health and also plenty of opportunity to set lower or higher standards above which a person might be considered as normal and below which he might be considered as abnormal and therefore diseased. The strong man, proud of his muscular development, might rate muscular strength and condition as the important element of health and consider a weakling as abnormal or diseased. A man with a poor digestion might look upon the man whose digestion never bothered him as having perfect health. And so through all the various physiological functions we would get varying conceptions of what should be considered as normal and what as abnormal, pathological or disease conditions.

Normal and
Abnormal
Conditions

Needless to say, if we make the standard rigid enough practically no one would be found to be perfectly normal in all respects. Nearly everyone suffers from some degree of abnormality, ill health or disease. It is a notorious and somewhat humorous fact that if any man goes to a doctor the doctor will usually find something the matter with him, and perhaps name a disease condition.



PHOTOGRAPH UNDERWOOD & UNDERWOOD

Motor truck equipped as traveling health clinic and used by the Chicago Tuberculosis Institute.

One should not, however, carry such a conception to the extreme. To do so is to dwell too much on the thoughts of abnormality or ill health and thus magnify one's imperfections. It is best to confine the idea of disease to the practical consideration of classing as disease only those states of bodily functioning that call for correction, aside from striving for the more perfect degree of health that all should aspire to attain.

The fact that conditions sufficiently abnormal to justify the term disease require some special treatment other than the program of normal health building does not mean that the same forces of Nature and habits of life that keep the normal man in health are useless in the treatment of disease.

No matter how varied the symptoms, the fundamental cause of the abnormal condition of disease is past failure to make proper use of health building forces. The backbone of all treatment of disease is the correction of the wrong habits of life that are primarily responsible for the disease condition. The healing of disease therefore has much in common with the building and maintenance of normal health. Other special factors or treatments may be called for, according to the nature of the particular disease and the particular case, but the general laws of health building hold true and should be the foundation of all more specialized treatments.

What is
Disease

This faith in the healing power of natural health building forces, as contrasted with methods of orthodox medicine, is the distinctive physical culture viewpoint in the treatment of disease. To understand why orthodox medicine tends to neglect such natural health building and healing forces it is necessary to consider the history of medicine.

The medical profession dates far back in history. It was developed in ancient Greece and Rome much along the lines of natural healing forces which the physical culture movement has done so much to revive in the present century. But the highly intelligent civilization of ancient Greece and Rome was lost and for over a thousand years the European world lived in the Dark Ages, when intelligence was at a low ebb and the world was under the sway of rank superstitions. Body-hiding and body-hating tend to suppress body knowledge and body functioning. People lived in filth and squalor and suffered

from numerous loathsome diseases which they blamed upon supernatural agencies.

The doctor was called upon to treat these diseases and he treated them according to popular conceptions as to their nature and cause. With the universal belief in supernatural agencies, the idea that diseases were caused by the disobedience of simple natural laws of health never gained a foothold. It was so much more gratifying to believe that disease was caused by a visitation of evil spirits than for vain and ignorant minds to realize that disease is caused by ignorance and wrong ways of living. When

men were blamed for their own diseases the explanation was not that they had broken the physical laws of health, but rather that they had broken moral or religious laws and were therefore being punished for their sins by the visitations of disease.

On such erroneous foundations the medieval practice of medicine was based. One important result, the effects of which are still with us, was the belief that disease is a



Origins of
Medical
Practice

PHOTOGRAPH EWING GALLOWAY

Realization of the value of health and physical fitness is one of the reasons for the modern practice of maintaining first-aid rooms and trained nurses in manufacturing and other establishments. Here is shown a girl worker in a silk mill having a minor injury treated.

specific external thing that comes from without and afflicts us. Diseases, being conceived of as such special forces or entities, were given specific names and considered as something that enters the well body and makes it ill. This viewpoint is still reflected in our language concerning disease. Thus we speak of being "attacked by," or "afflicted with" a disease. In this wholly erroneous conception of disease the half erroneous ideas about disease germs found good soil for growth.

Establishment of the relation of germs to disease came at a time when faith in supernatural agencies as the cause of disease was finally waning. The discovery of foreign organisms in the body as the cause of disease fitted in with the old conception of disease as an external invader of the human body. In the popular mind the disease germ replaced the disease devil. Both theories were alike in causing the patient to feel that he was attacked from without by an invisible enemy instead of admitting that the disease was of his own making and due to the failure of the normal functions of the healthy body.

Germ
Diseases,
Theories on

Various species of bacteria or disease germs are found in many, but by no means all disease conditions of the body. The popular conception is that the germs cause the disease. But there is a more fundamental cause back of the fact that the germs enter and grow in the body. If this were not true everyone would harbor all kinds of disease all the time and human life would speedily be wiped out. Only when fundamental disease, in the sense of the failure of function, develops first do we become susceptible to the disease germs that are always and everywhere present in our environment.

When disease germs were first discovered doctors were hopeful that medicines would be found effective in killing them. While numerous antiseptics have been discovered that can be used to kill disease germs outside the body, they are nearly all rank poisons which if taken internally in strong enough doses to kill the germs would also kill the human cells. Only two or three instances are acknowledged by scientists today in which the internal administration of drugs actually kills disease germs in the body.

Hence the discovery of disease germs, instead of more firmly establishing the art of drug medication, has served only

to show that drugs fail to have the specific curative effects claimed for them. The normal, healthy man continuously makes his own medicine against disease germs. When this normal function fails and disease germs do enter and multiply in the body, Nature sets about restoring the body's power to destroy the germs. If the effort is successful the germs are routed and the patient recovers. If the effort is a failure the germs continue to multiply and the patient dies.

Those who maintain that drugs and vaccines are what give the patient the ability to destroy germs overlook the fact that the normal, healthy man has power in his own physiological processes to defend himself against these same germs. Even in the most virulent and contagious epidemics only a small per cent of the population contracts the disease. The majority of the population are immune. The logical method of treatment therefore is to use the natural health-building forces to rebuild the powers the patient normally possesses but has temporarily lost.

Drugs vs.
Natural
Treatment

In the diseases in which the germs are present it is a disputed question as to how much of the responsibility for the injurious effect of the disease should be attributed to the presence and action of the germs and how much to prior failures of normal function that render the body subject to the growth of the germs. The advocates of the types of medical treatment which presume to destroy the germs would naturally credit the germs with the whole responsibility of the destructive effects of the disease. But that obviously is not logical since the body must be in an abnormal or unhealthy state before the growth of the germs is tolerated.

Furthermore, we should call attention to the fact that the general conception of those who stress the importance of disease germs is to presume that there are germs for all diseases. But that is far from the findings of even orthodox medical science.

In the official classification of the causes of death used by the United States Census Bureau there are only forty-four diseases classed as "epidemic, endemic and infectious," and this list is augmented by including eight varieties of tuberculosis. The total list of the causes of death in the Census classification numbers two hundred and thirty. Thus we see that,

by this classification, less than twenty per cent. of diseases are in this class of infectious germ diseases. In some of these the specific germs have not been actually discovered but are only assumed to exist because of the infectious nature of the disease.

Germ as
Cause of
Disease

In case of the other and major portion of diseases from which the human race suffers, prodigious researches have been made to discover germs as the cause of the disease. Year after year the papers announce that some one has discovered the germ of cancer, but the reports are always later discredited. Many other diseases, such as scurvy and pellagra, that were once attributed to germs now are recognized as having other causes. Among definitely proved causes two of the most notable are deficient and erroneous diet.

It should therefore be clear to the rational thinker that the popular fear of disease germs is unwarranted. Germs have been stressed and exaggerated because the layman gets a conception of disease that seems to shift the burden of its cause from his own habits of life to an invisible enemy. The doctors have consciously or unconsciously abetted the popular error because such view gratified those who were supposed to know how to fight the germs against which the patient could do little to help himself.

These statements are self-evident: Every prophylactic or curative factor or agent should meet the test of naturalness to the body. Those factors which will build the highest degree of health will preserve health. Modification of these same factors will permit the body to rid itself of disease if the disease is curable. What is foreign to the body and detrimental during health, with a tendency to produce disease, is of greater detriment to the body during ill health and has a greater tendency to accentuate or multiply the manifestations of disease. No element, combination of elements, ingredient or concoction of ingredients, no agent whatsoever that will not aid the body to become stronger, more vital, more normally functioning as a machine, more resistant to adverse influences, has a place in the body at any time. If it cannot improve and increase health and the manifestations of vitality in a body free from disease, it cannot aid a body whose energy and vitality are reduced to increase its ability to combat disease.

It is not claimed that medical preparations and viruses do not have their seeming good effects in case of disease. The greatest single factor in the continuation of the lay belief in the efficacy of medicine is the more or less rapid change in symptoms produced when medicine is taken. But the symptoms have been either suppressed or shifted to some other region of the body or changed in character.

In the former instance it has been taken for granted that the medicine has "cured" the disease, the symptoms no longer being present; in the latter instance the new symptoms that make their appearance are interpreted solely as some new disease, no connection being recognized between the former "disease" (symptoms) and the new symptoms, because they have had nothing in common, perhaps have affected widely different organs or parts of the body. Indeed, changes are produced by medicines and vaccines; but are they the changes we really desire? And how can they be desired changes if they do not get down to the *cause* of the symptoms—of the "disease," so called?

Sick people are impatient people; what they want is relief from sickness and pain. As a rule, sick people are unreasonable people; they want quick relief regardless of the physical cost. It is the impatience and unreasonableness that make sick people unwilling to assume any responsibility for their sickness that has perpetuated medical treatment as much as have the doctors themselves, perhaps much more.

Sick People
and Cures

When a physician desires to reason with and to direct a sick patient along common-sense lines of conduct but does not give a bottle of medicine or a box of pills or powders, or a prescription, the patient not only feels that he owes the doctor nothing, but he will call another physician who will leave out the "preaching" but who will leave something tangible—something that offers quick relief. Hence in self-defense doctors have had to prescribe medicines, perhaps some in which they had little if any faith.

Many a physician prescribes tablets and pills of varying sizes, shapes and colors, which he keeps in boxes and bottles bearing various labels, and which give his patients quick and pronounced benefit, but all of which are merely "placebos," "blanks," in other words plain sugar of milk without a sug-

prescribing
and Placebos



PHOTOGRAPH EWING GALLOWAY

Latter-day treatment of disease is largely concerned with the determination of its causes. The work of the laboratory is important in this field.

gestion of any medicine in them except the inferred mental suggestion of medicine that he gives.

These physicians, leaning strongly toward natural treatment of disease, begin using placebos because they are forced by their patients to prescribe something tangible. The patients are more willing to follow the health advice when they also have "something to take" besides the advice. The doctors know that if the patients do not get something they will go to other physicians who, no

doubt, will prescribe the usual strong medicines in one form or another, so these practitioners rightly feel justified in hoaxing their patients to this extent.

Unless it is an acute disease, quick changes in cause or symptoms cannot be brought about without the use of some unnatural and to a greater or less degree harmful agent. Even many acute diseases have more or less definite periods

to run unless the fast is rigorously enforced, so if these are shortened appreciably by any other manner of treatment than by natural and drugless means the result has been accomplished at a sacrifice of vitality and with the production of undesirable conditions, even though these may remain unrecognized.

Aside from neglect of acute diseases, the leading cause of chronic disease is mistreatment of acute diseases, treatment that masks or suppresses symptoms and that permits the cause to run merrily on, undermining the health insidiously. Of course, the drugs themselves have their share in the causation of chronic disease, since they are foreign to the body and often are not eliminated but accumulate in some organ, there to reduce or alter function.

Acute
Disease

A canary placed under a bell-glass gradually exhausts the supply of oxygen in its environment and in time will succumb to oxygen starvation if a fresh supply of air or oxygen is not provided. Another canary placed in the vitiated atmosphere will be quickly killed, long before the first bird will succumb. Indians taken from the plains and housed in even poor modern dwellings quickly yield to the ravages of tuberculosis. Conditions associated with modern living affect them much more quickly, severely and disastrously than they affect those who have been reared in the conditions.

These and numerous other facts demonstrate the inurement of the physical body to adverse conditions. No doubt we all become accustomed to conditions that are in themselves detrimental to health and to life. The vitality and resistance of the human body is remarkable, its ability to develop increased resistance seems almost miraculous. But many of the conditions to which we seemingly develop pronounced resistance exact their toll in reduced vitality, greater susceptibility to disease manifestations and shorter life. The use of food stimulants and so called foods that have little if any food value, and especially tobacco and alcohol, may be mentioned as illustrations.

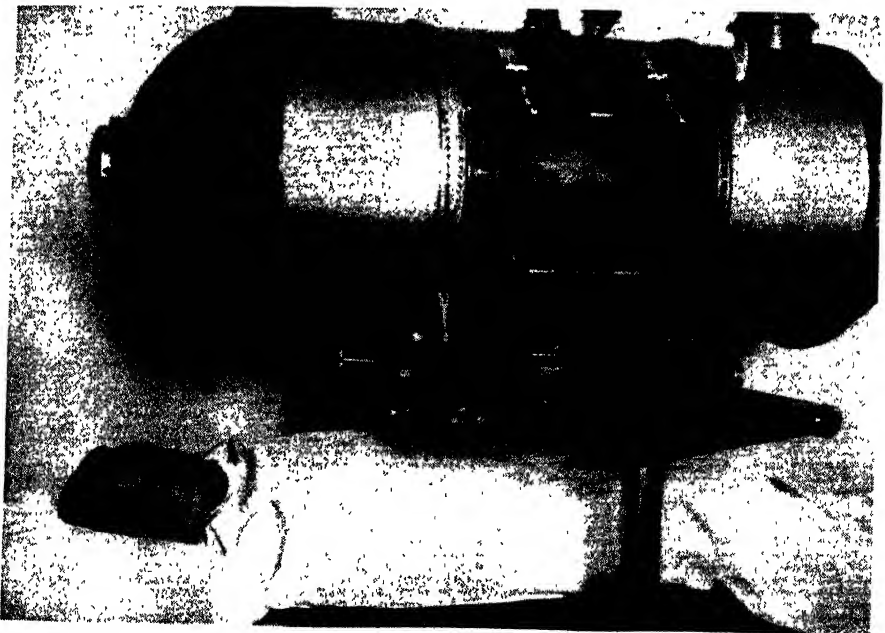
But an illustration more explanatory of our present subject is the tolerance of the body for absolutely foodless and foreign substances, such as medicines in various forms and the products of germ-cultures—serums and vaccines. When

we consider for a moment, reason rationally and with unbiased mind, we must come to the conclusion that everything which Nature designed to enter the body serves the purpose of food: recognized solid and liquid food (victuals, eatables, pabulum, aliment), sunshine, water, air, *and nothing more.*

Medicine
and Vital
Processes

A food is any material which when taken into the body serves the purposes of repair or growth, energy production and maintenance of the vital processes and in itself has no detrimental effects or inhibiting action upon any process. Only sixteen of the eighty-six or more elements found in nature normally exist and serve some purpose in the human or the animal body.

Many medicines have little or none of these sixteen elements, hence are not foods in any possible sense and do not serve any of the functions of food. Therefore, they have no part in the physical organism. Germs for the most part are the end-product or the by-product of degeneration, which



PHOTOGRAPH UNDERWOOD & UNDERWOOD

Massive x-ray apparatus of the sort shown has been designed for the treatment of malignancies such as cancer. Use of such equipment is necessarily confined to those skilled in the technique of such treatment, precautions being essential to prevent the spread of growth or other undesirable result.

is a condition just the opposite of that produced by real foods—growth, vitality, aliveness. They cannot produce or aid any of the life processes within a physical body, hence have no relation whatever to food. Therefore, germs or their products serve no purpose of foods, are totally foreign to the body, cannot be used by the body in any natural process and can have but an unnatural effect that does not add vitality nor aid resistance to the ravages of disease, stress, and the strain of age.

Serums and vaccines do produce effects upon the body. Ignoring for the present the serious and fatal results of their use in occasional cases, any apparently beneficial effects from their use are the result of the stimulation of unnatural processes or of natural processes to a degree that must draw heavily upon the vitality. One cannot get away from the facts that their use, while "scientific," is opposed to Nature and all natural processes of health; so disease eradication by their aid cannot make the body a cleaner, healthier one, and cannot add to the total of vitality that will carry one into old age in comparative freedom from disease and give one a long life.

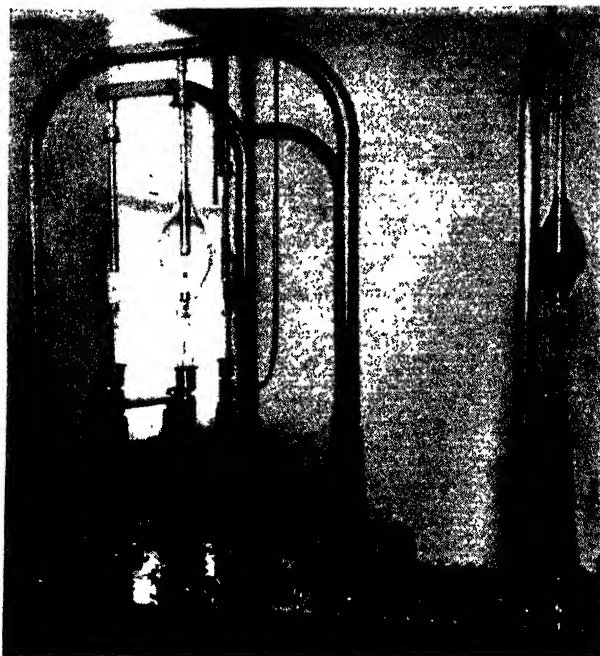
Serums—
Vaccines—
Viruses

Disease is a condition brought about by wrong living in one or more of many ways. If disease is so produced the individual himself then is responsible for his illness; so the *correction* of disease would then seem to depend upon revision of the manner of living, upon the undoing of the harm created, merely by discontinuing the harmful practices and putting into practice healthful factors that have been neglected.

Factors of
Disease
Correction

This appears to be the only manner in which disease and its manifestations can be eradicated, or any part of them reduced or removed without reduction of the vital force. In fact, when disease is treated in this manner the vitality is not only not reduced, but it is actually increased.

Diseases are classified as acute and chronic. Acute diseases are those that have a short, sharp course, with symptoms of more or less violent character and terminating after a comparatively brief period in health or death. Chronic diseases are those of long duration, the symptoms usually being not violent and sometimes disappearing, but tending rather to progress until they end life through disturbance of some vital organ, by reducing the general vitality, or through an acute



PHOTOGRAPH UNDERWOOD & UNDERWOOD

In this photograph (greatly reduced in size) are depicted high voltage tubes in use with special x-ray apparatus used for treating cancer in a New York hospital.

**Causes of
Acute
Diseases**

develop quickly—a wrong impression. The causes of acute diseases have been in operation for a long time in most cases before the symptoms appear suddenly. It is only because these causes have created within the body certain reactions and because the body at certain times has greater ability to react to them that the acute symptoms appear.

Suppression of these symptoms or neglect of the disease (rather, of the cause of the symptoms), or wrong treatment brings about a gradual undermining of the vitality and the development of chronic disease. However, some chronic diseases develop insidiously, without forerunning acute diseases, often there being insufficient vitality to create a quick reaction and acute symptoms or because there is a cause insufficient to arouse the defensive forces of the body sufficiently to produce an acute protective reaction. Subacute diseases usually are improperly or inadequately treated acute diseases, or acute diseases in those patients of insufficient reactive and recupera-

disease to which they are said to make one pre-disposed. There also is the group called subacute diseases, more prone to recovery than the chronic diseases, and having less severe symptoms but lasting longer than acute diseases.

This classification leads one to believe that the causes of the various diseases are different and that the acute diseases

tive powers to have typical acute diseases or to recover quickly from acute diseases.

In the early stages, practically all diseases respond quickly to proper treatment, and practically all acute diseases promptly disappear when the right treatment is applied. Often, however, chronic diseases, as such, cannot be treated in the earliest stages because there are no symptoms until the disease processes are well established, or because the early symptoms are ignored or misinterpreted. When chronic disease has become well advanced the ultimate outcome of treatment depends upon many factors, such as the degree of damage to vital organs or functions, the nature of the disease, specific causes and the possibility of their removal, the age of the patient, the duration of the disease and so on. Even the most effective of helpful measures most correctly applied are able, in some cases, merely to check the progress of the disease processes or to counteract their injurious effects.

Chronic Dis-
ease Cor-
rection

The time to treat chronic diseases especially, but all other diseases as well, is before they have begun. To a considerable extent the same factors are used for maintaining health and preventing disease as are employed to cure disease, they being modified and adapted to the condition of the sufferer and the nature and location of the disease manifestations. But it requires much more concentration of some of these factors to bring about correction of disease than it does to maintain health. Unfortunately, the average person goes merrily on his way giving no thought to the subject of health until his health is lost or greatly impaired.

What will quickly eradicate an acute or a subacute disease may merely check the progress of a chronic disease; and what would maintain reasonably good health may be inadequate to prevent development of acute disease, or in time a chronic disease. After a chronic disease has become well established or advanced, unless the vitality naturally is high, there may be no treatment that can restore the lost health to a high degree. But even so, the treatments recommended in these remaining two volumes will do much to reduce the symptoms, hold the disease process in check and permit one to enjoy living.

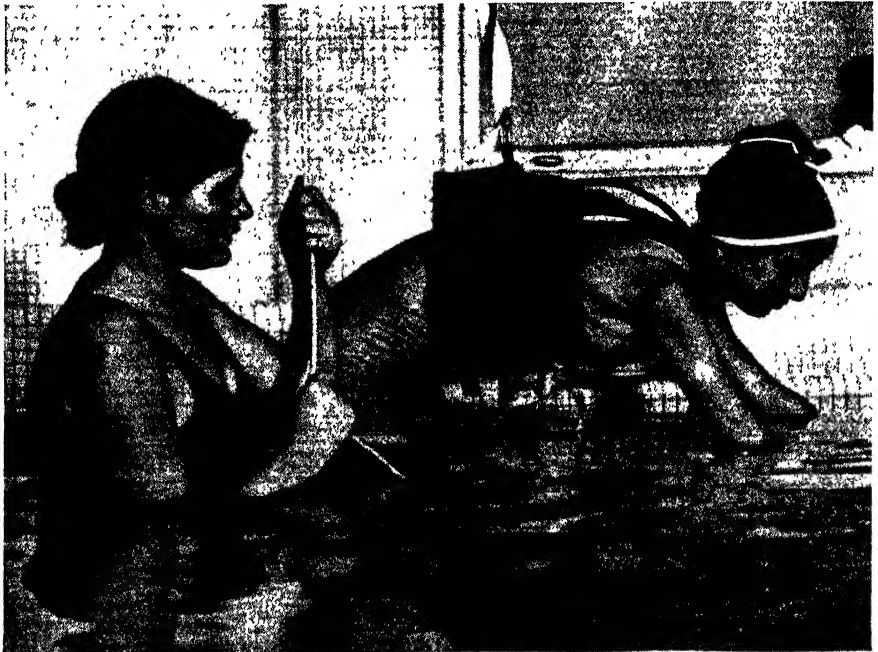
It is true that diagnosis is less important when the chief

2808 ESTABLISHING A DIAGNOSIS

object of treatment is to restore the general resistance of the body than when treatment is directed toward symptoms. Yet the course that may be run by certain forms of disease has become known after centuries of observation. This knowledge permits treatment to be properly adapted to the condition when the condition is known with a fair degree of definiteness. It certainly is of great advantage, even extremely important to know, for instance, that one has an organic heart disease, or nephritis, or diabetes, or locomotor ataxia, or tuberculosis, and so on. But many disorders, if only fairly advanced, are comparatively easy to diagnose. Among these are the above. It is in the earlier stages when there is great difficulty in establishing a diagnosis where adoption of a healthful routine and the discontinuance of specific harmful practices often are sufficient to check the progress of disease.

difficulties of
diagnosis

Many times a diagnosis is impossible simply because the symptoms and signs have not advanced sufficiently to furnish adequate basis for diagnosis. Practically all the important



PHOTOGRAPH UNDERWOOD & UNDERWOOD

The use of a swimming pool in the treatment of ruptured and crippled children in a New York hospital, is here shown.

diseases can be diagnosed accurately only when there are fairly pronounced indications. Certainly one should not postpone treatment until these indications do become sufficiently prominent for a diagnosis to be made easily. Nor should one be content merely with treating to allay, or with allaying the symptoms. He should wish and aim so to reach the underlying causes as to check the developing disease and as nearly as possible restore normality.

In a great many cases of acute disease where every early symptom and the fact of association of the patients with others having certain communicable diseases indicated the development of these diseases, promptly applied natural measures have so quickly removed all symptoms as to preclude positive diagnosis. In a great many other cases diagnosed in their early stages as certain communicable diseases, natural measures have so promptly restored normal conditions as to create certainty in the minds of members of the families and friends that the diagnoses were wrong.

Natural
Methods
and
Treatment

It is just as possible to change conditions that are permitting the gradual development of a chronic disease which as yet cannot be diagnosed, so that the disease will not develop and so that all early symptoms of it will disappear. When people become health conscious and sufficiently versed in natural ways of living and of treating disease the majority will be able to prevent disease from developing or to abort both acute and chronic disease in case they begin to develop, by adopting and adapting the simple health measures embraced in the art of right living and, in the latter case, by using some of the special drugless measures described in Volume VI and applied in these remaining two volumes.

Common sense is as necessary in attempting to correct symptoms of developing disease as it is in treating well-developed disease—and for that matter even in attempting to live rationally. A case or two mentioned here will illustrate this.

Common
Sense and
Treatment

A great many people do not want to know if there is something wrong with them physically. They are content to proceed in ignorance of conditions that may be developing, conditions that sooner or later, often quickly, will spell their doom if allowed to continue. While going along they bolster

up themselves with optimistic thoughts, with the auto-suggestion that they are "all right," with self-hypnotism into the belief that there is and can be nothing the matter with them, or that if certain symptoms develop they will be able to wear them off. Many even acknowledge that they fear the examining physician will discover some ailment or developing ailment; and a great many fear they will be advised to have operations. These very fears should send these people to physicians for examinations, in order that they may *know* whether they are sound or diseased.

Those who always have relied upon doctors for treatment and who have never attempted to learn anything about their bodies, their needs and rational living so as to prevent development of disease naturally may fear discovery of pathological or serious functional disturbances. If anything of this nature is found they naturally feel compelled to follow the physician's advice.

This is why so many people submit to surgical operations and to virus inoculations as well as to medical treatment upon the first suggestion by their physicians—forgetting or not knowing that, in an individual case, frequently there are differences of opinion among physicians as to the nature of an illness and the proper mode of treatment for the condition found. Because of this difference of opinion and before the suggestion and advice of the first doctor is taken as final, a diagnosis of at least one other physician should substantiate the first if the diagnosis and prognosis are grave. These doctors should not be acquainted with or have any connection directly with the family physician.

The purpose of fairly frequent physical examinations is not primarily to find what treatment is necessary; it is to discover the state of health and to determine whether or not some function or organ is beginning to break down under some stress that might be avoided if its effect is known. After these *health examinations* it may be that no treatment whatever will be advised, there being found no condition that cannot be corrected by following a few simple suggestions regarding changes in one's habits or mode of living.

Those who have made even a fair study of health and health-promoting measures and habits of living, such as are

discussed clearly and in detail in earlier volumes of this work, should be able to modify their daily conduct so as to bring about correction of any abnormal conditions revealed; or they may be able to turn to one of these final two volumes and be directed to more or less specific remedies for their disorders. If they have the necessary health knowledge but not the self-assurance they may be able to follow suggestions given in these volumes under the observation of a physician broad-minded enough to assist them.

Health
Knowledge
& Necessity

A great many people *know* the right and the wrong in the matter of treatment, but carry so firmly implanted in their minds the impression of the accuracy of the physician's knowledge and advice (right or wrong—for many think, in spite of themselves, the physician must be right) that, regardless of the assurance they have of the correctness of their own beliefs, they will follow opposing views presented by their physician. There is no help for many of these people until they find themselves up against a stone wall and are compelled to help themselves if they are to get any help.

But all this does not detract from the value of health examinations. The time is coming when a majority of people will have these examinations, perhaps once yearly, realizing that these are among the greatest health insurances possible to have. The day of "preventive medicine" is arriving. To the super-scientific physician this means so called prophylactic serums and vaccines. To the physical culturist and clearer thinking medical physician it means living in such a way as to maintain vitality and avoid disease-producing and undue aging habits and manners of living.

Preventive
Medicine

The aim of preventive medicine is to diminish the chances for premature death, preceded by conditions that disable or that make life a burden. Nothing is gained by dragging out a miserable existence for five or ten years beyond the allotted "three score years and ten." By proper living, planned with intelligence and aided by the findings of yearly examinations, one retains youthfulness of mind and body and advances into old age mentally and physically fit.

In early life and up to middle life is really the time to treat old age. Life can be prolonged to an appreciable degree and made pleasant while being prolonged, only by the preven-

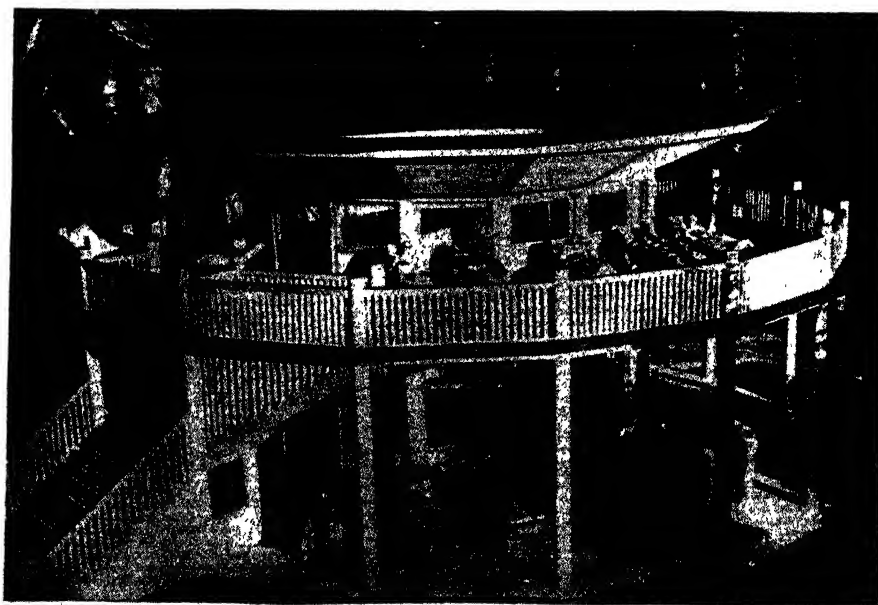
Age and
Health

tion or avoidance or the arrest and cure of disease in its early stages. A great many people now heading toward premature death or semi-invalidism before they reach or pass middle life or old age could avoid either or both if they but knew their weaknesses and then modeled their plan of life according to need.

Healthful living according to an intelligent plan will maintain a supply of those elements and substances responsible for youthful conditions but which are gradually destroyed by living haphazardly. One practically may ignore bacteria as a factor of disease and decay if one lives rationally according to the plan previously suggested in these volumes. The large number of defects often found in those who consider themselves in good health—defects that in themselves and taken singly may be trivial, though sometimes serious—indicates that it does not pay to play the ostrich—to keep the mind in ignorance of the real physical status.

In an address delivered before a meeting of members of the Association of Life Insurance Medical Directors on October 20, 1921, Dr. A. S. Knight made the statement that the mor-

Healthful
Living
and Youth



PHOTOGRAPH UNDERWOOD & UNDERWOOD

This roofless solarium, of round-house structure, was especially designed by a Hungarian physician for tuberculosis patients.

talities of a special group of 5987 men who had taken voluntary medical examinations regularly seven years under the direction of one company had been only fifty-three per cent. of the rate expected on standard insurance tables. Thus the company, in defraying the expenses of the tests for its policy holders, had its principal returned and made on the investment, through reduced insurance claims, a profit of two hundred per cent. It is reasonable to assume that these men, while enjoying greater freedom from disease, also were more efficient and enjoyed the feeling of increased general well-being and more freedom from loss of income through illness, in fact capacity for greater income.

But we are not as yet educated to the point of regular health examinations. Nor are we educated in the art of healthful living.

It is with the desire to help those with an honest and earnest wish to help themselves, to preserve health and experience the satisfactory feeling of abundant energy and vitality and to hold in check or quickly reduce signs and symptoms of developing trouble and its underlying causes, that these volumes have been prepared with a great deal of thought and attention to detail.

It is not healthful to dwell upon sickness and disease. This applies to the diseases one does not have as well as to those one has. Hence works on disease and treatment should be used as reference only, and as reference regarding only those diseases and abnormal conditions in which one is directly interested because of being afflicted with them. Even then the symptoms should be dwelt upon as little as possible, the chief attention being given to the treatment.

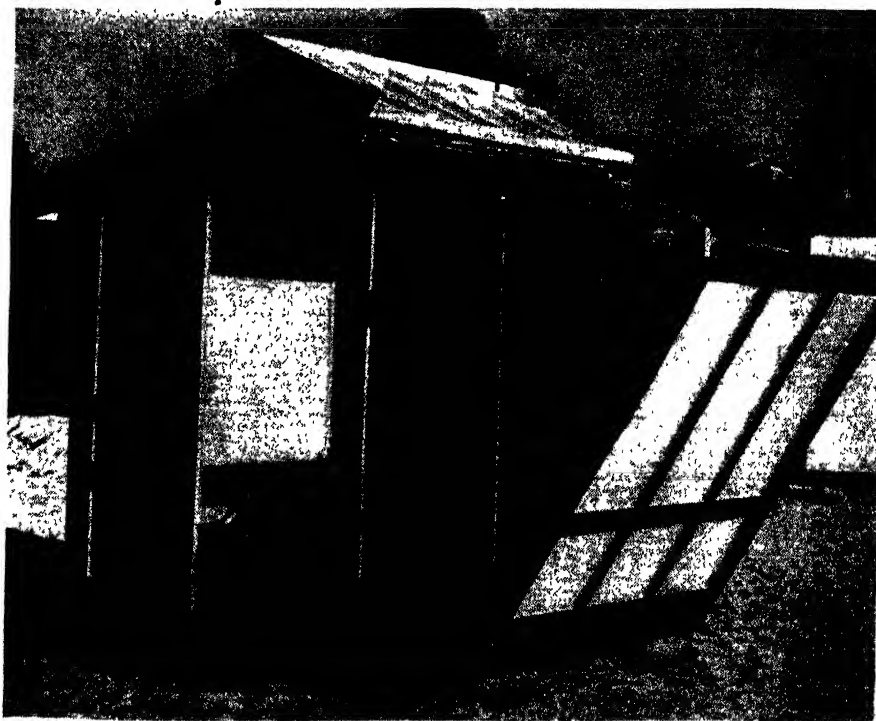
Attention should be given to the causes also; for if one understands the theory of disease and of cure according to the physical culture or nature cure beliefs, the battle should be half won when the causes are understood—provided, of course, one goes to work to remove the causes. The chief causes of disease and all manners of illness are considered under *Sleep and Habits Related to Health*. (See Vol. I, Sec. 8.) One should thoroughly digest this material, for upon it is based the natural treatment of disease. It is the treatment from which physical benefits will be derived and which makes these

volumes of such tremendous value to those who are subnormal in health.

Both the causes and treatment of disease will vary in different cases. In one instance disease manifestations will result from a certain combination of causes, with certain causes predominating, while in another instance of the same disease manifestations there will have been a somewhat different combination of causes, with other causes predominating. In the treatment of diseases, then, even though the manifestations may be the same or similar, certain treatment factors will need to predominate in some cases and other factors in other cases.

The effort has been made throughout these volumes to bring before the reader the rationality of hygienic living and of natural, drugless treatment, an understandable cause of disease and theory of disease, and an explicit, positive, health-building means of overcoming disease. If followed with

Disease—
Causes and
Treatment



PHOTOGRAPH EWING GALLOWAY

Control of exposure and other conditions in sun-bathing is effected by structures of this sort which insure privacy, as well as protection from high winds or other adverse conditions.

reasonable accuracy the treatment factors as suggested for the various diseases will bring about health improvement in practically every instance.

Unless one becomes so enthusiastic as to employ some measures to excess (for instance the fast, cold bathing or exercise) certainly no harm will follow from the treatment and the vitality will not suffer. This cannot be claimed for any drug or medical or virus treatment yet devised.

**Over-
Enthusiasm
in Health
Building**

But in the majority of cases there will be pronounced improvement, and in a large number of cases there will be complete correction of abnormal conditions and complete removal of all symptoms—provided, of course, sufficient time is given for Nature to undo the damage.

Time is a highly important element in the correction of disease, just as it is in the development of disease. Disease does not spring upon one suddenly; it develops slowly, often so insidiously that one is not aware of it until it has become well established or well advanced. It is not corrected quickly except when acute in nature. But give adequate time, the aid



PHOTOGRAPH UNDERWOOD & UNDERWOOD

Nurse in a municipal tuberculosis sanitarium giving artificial sunlight treatment in a public school for crippled children in Chicago, Illinois.

of at least the important factors of natural, rational or right living, with special drugless factors in some cases, and favorable results may be counted upon.

Power and
Vital Force

The vital force which develops the body from an extremely minute impregnated cell, which brings about the growth after birth and which maintains life and perhaps a considerable degree of health against many handicaps—that force will restore health and vigor and normal functioning if destructive processes have not been allowed to make too great an inroad into the organism.

This treatment has its failures, it is true. Vitality cannot be measured. It varies greatly in different individuals. Disease processes have progressed to different degrees in different cases; the disease conditions have created different degrees of destruction of organs and functions; ages of patients vary; some at forty are actually sixty so far as organs are concerned; some enter treatment whole-heartedly, others disinterestedly or half-heartedly, or even against their wills; the causes in some cases have been few, in others legion; some have had less interference with functions, less poisoning of the body by drugs than others; also some less or no interference by surgery; and so on.

Best Way to
Get Well

But if a cure is possible, in most cases it is possible through natural treatment. People usually look for the quickest way to get well. Natural treatment *is* the quickest way even if it does not produce perceptible changes as quickly as medical treatment. The reason is that it is the *only* way in which health can be restored. A slow trip through a canal, with locks that cause temporary delays, on a boat that reaches its destination, is a quicker trip than one that leads over a waterfall or through rapids that sink the boat and drown the occupants. In this case it is the only trip possible. It is like that with natural treatment. The progress may be slow, there may be more or less discouraging delays at times; but if the destination of health can be reached at all, it may be by these methods.

The most frequent use for the home treatment of illness is in the case of children's ailments. If children are properly fed and cared for and have abundant sunshine and exercise they may go through childhood without contracting any of



PHOTOGRAPH EWING GALLOWAY

PLATE 88. Boys and girls who have abundant sunshine and exercise often pass through childhood without contracting the so-called children's diseases. This photograph shows young bathers on a beach in Spain.

Encyclopedia of Health: Volume VII

the so called "children's diseases." More and more, in careful families, this is happening. However, if a child grows up in a community and goes to the community school there is always the chance of illness through failure to maintain a proper routine of diet or elimination when away from the eye of the family.

A foul alimentary canal is the cause of nearly all diseases, more especially of children's diseases. Usually the first method to adopt in the treatment of children's diseases is cleansing the lower bowel. In some cases the stomach also requires cleansing, so an old-time method is recommended for this purpose; namely, tickling the inside of the throat with the finger till the stomach empties itself and to continue the process till nothing remains therein, giving drinking water to assist.

Expelling
Impurities

This, together with hot packs to the spine and throughout the entire middle part of the body, is what might be termed the fundamental principle in treating children's diseases. This, combined with the free drinking of non-nourishing liquids, will so quickly cleanse the body of the poisons which directly cause serious diseases that these will literally be cured before they start. The method now in vogue of pumping antitoxins and other serums into children and the pernicious routine of drugging cannot possibly obtain such results. It can only add to the body's toxemia and reduce vitality.

There has been a definite need for a practical work on diseases and their home treatment, in sane, safe and satisfactory ways. Some treatments or factors of treatment we describe may be unobtainable; some may seem bizarre to the uninitiated; some may have been used already without desired benefit.

In such cases, one should remember that disease often is a "six-horse load." Many have tried to move the load with a single "horse"—with a little or with much exercise alone; with diet alone; perhaps with merely dropping meats from the list of foods used, while often adding enough cereal or other none-too-good foods to counteract what value there may have been in the meatless menus; or with cold baths, or sleeping with open windows, or the use of local heat or sun-baths, or some other single factor—a single "horse." There is multiplied power in numbers, so any health factor will have greater value when used in combination with other health factors.



PHOTOGRAPH UNDERWOOD & UNDERWOOD

A portable dome-shaped solarium structure, made of wire mesh with a light linen surface. In many cases roofing-in is not essential and the structure may remain open for air circulation and direct irradiation. When open air and free exposure of the body are not practicable, this device permits sun-bathing without serious loss of effect in ultra violet or other rays.

Therefore, use as many of the health factors, as many "horses," as you can, provided there is no conflict and no contraindication to the use of some of them. Diet, including water drinking, is the most important single factor; exercise and relaxation (including sleep) are the next most important, the two being inseparable, for one cannot relax without having tensions to relax, he cannot rest without first being tired, and he cannot continue tension or activity without alternating it with rest. Get these two (or three) factors if nothing else. But do not neglect elimination, fresh air, sunlight, bathing, right thinking and whatever others may be necessary. Enter into the treatment with belief that good results will be yours.

In spite of all medical inanities and insanities the human race has continued from generation to generation; so it is to be hoped that the intelligence manifested within the body itself will some day be given proper respect. Then the general principle that there is no disease without a cause within the body will be definitely and completely accepted.

Probably, nowadays, nearly everyone is concerned about germs; but few people are concerned enough about minor ailments—such as colds, indigestion, that “tired feeling,” etc.—which pull down the vital resistance and make for general inefficiency and maladjustment. It is in dealing promptly with such conditions that the home treatment may be most useful. For none of these happens without a cause. They are danger signals that indicate something wrong within the body. A cold is the beginning of a complaint that often becomes serious, so it is desirable to give it the attention necessary to modify or definitely cure it. Similarly, a pain anywhere in the body is a warning that something is wrong. There is always a reasonable excuse for the existence of pain. In nearly every case it assists in a needed physiological process that is curative. The greatest objection to drugs which kill the pain is not that drugs always do great harm in themselves, but that they keep the sufferer from ascertaining and removing the physiological cause.

Minor
Ailments

When elimination is faulty, through poor food, lack of fresh air, lack of sufficient exercise, or lack of sleep, poisons of various kinds get into the circulation and are absorbed by the tissues. When these foreign elements accumulate beyond what might be termed the saturation point, they must be eliminated or death will ensue. The cold, the pain, the general sense of misery—whatever form of physical discomfort one may feel—is the first message from the body that all is not well. Such messages should always be heeded to the extent, at least, of cutting down food and hastening the process of elimination. But, if you are not sure you are right in what you are doing, don't depend on guesses. Consult a physician in whom you have confidence.

Elimination

The best home treatment of disease is not in substitution of the experiments of an amateur for the work of a hospital, but in the building up of health habits for each member of

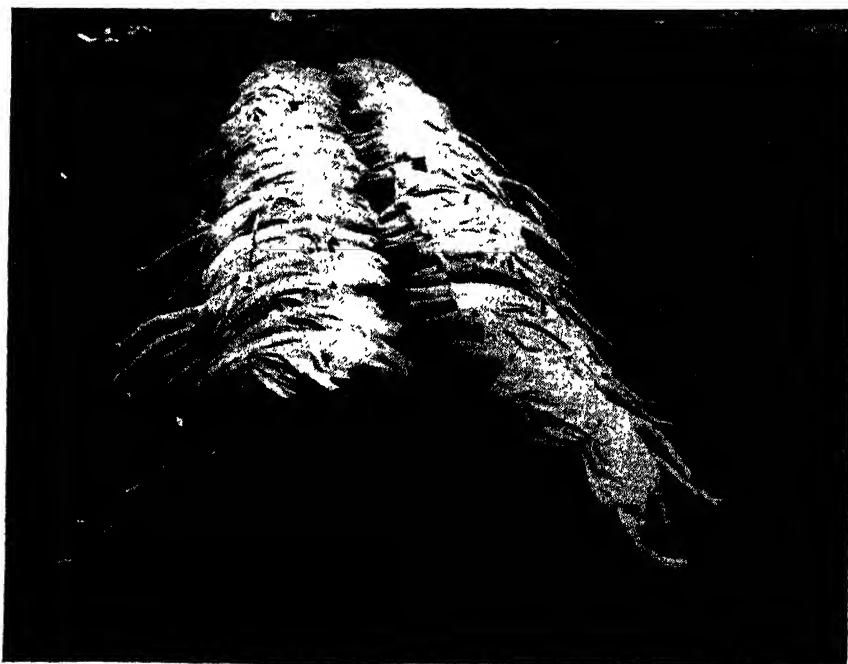
2820 INJURIOUS HEALTH HABITS

the family. These furnish a natural protection against disease. Adherence to vitality-building rules should be part of the family life.

Experiments in Health

We cannot over-estimate the tremendous importance of habits. Analyze your daily routine. Find out its exact effect on you and your family. Do not be afraid to make this analysis careful and searching in its methods; for your success or failure will depend on what you learn from such reasoning. You have doubtless fallen into certain bad habits. Most of us do, sooner or later; there are few exceptions. Sometimes these habits are serious. They assume the degree of dissipation which gradually destroys health and body.

No matter how much knowledge you may possess as to the care of the body, there is always more to learn. Every day presents its lessons, so more and more information is gradually acquired.



PHOTOGRAPH PACIFIC & ATLANTIC

Instructors in health and hygiene, as well as physicians, are benefited by practical knowledge of corrective exercises in combating ill health. This illustration shows French school teachers engaged in intensive preparation to instruct their pupils in physical training.

Some people follow a rigorous routine. They never vary in the slightest degree. This is not always desirable. Do not be afraid to experiment. Do not thoughtlessly cast aside either old or new ideas. New ideas often result in changing one's entire life and often bring information which saves health and sometimes life itself.

Habits master us, hold us down or build us up. We should especially endeavor to be sure the daily schedule within the household is definitely upbuilding. Is the diet everything that can be desired? Do you bring a keen appetite to meals? Do you recognize the necessity for thorough enjoyment and full mastication of your food? Are you fully master of your actions? Can you compel yourself to follow certain rules after you have been convinced that they are desirable? All these and many other questions are important for guiding one into profitable channels. It is therefore desirable to form good habits—those that tend to make one vital, vigorous, studious, enthusiastic, and ambitious.

Few of us ever realize how much we are in the habit of abusing ourselves. We begin to decay almost from the hour of birth. Our children enter kindergarten with decayed teeth. They suffer from enlarged tonsils and adenoids. They have enlarged glands. Many of them are deformed. Some of them are stunted. An appalling number of them suffer from rickets in varying degrees. This process of decay, due to defective food, lack of sunshine and fresh air, and other unnatural influences, continues through life. As one tissue after another breaks down, "new diseases" are named. But it is all a related process.

Health in
Children

All this culminates in old age, cancer, diabetes, Bright's disease, disease of the heart and the arteries, insanity and nervous diseases and, finally, death. Yet it is possible for us to avoid most of these ills. We can retain health, strength, youth and mental alertness up to the very hour of death and waste no time along the way by being sick. It is purely a matter of right thinking and wholesome living.

Avoidance of
Chronic
Disease

When you treat your body decently it will repay you in health and strength. Therefore, stop killing yourself by degrees and you will grow old in years without becoming aged in body or mind. Avoid all devitalizing habits and in-

fluences and give your body proper food, daily exercise, sunshine and fresh air, rest and sleep, and maintain mental and emotional balance. This is the daily insurance against disease and illness which everyone should pay—and draw dividends in happiness and contentment and success all along the way.

B. M.

WHAT THE PHYSICAL EXAMINATION REVEALS

Section 1

Diagnosis
of Disease

PHYSICAL examination serves a double purpose or, rather, has two uses: The one that formerly was given sole consideration and which still is extremely important, that of leading to a determination as to the cause and nature of one's physical ailment; and the newer one, of serving as a check-up on one's health so as to detect in its earliest possible stage any deviation from normal, in order that steps may be taken to restore normality while this may still be an easy matter. These, respectively, may be called a disease examination and a health examination.

Inasmuch as medical treatment and surgical operation are based upon diagnosis, it is extremely important that diagnosis be as nearly correct as is humanly possible to make it. Otherwise the treatment is bound to be wrong. That is, any treatment given upon mistaken diagnosis for a disease or a condition assumed to exist but not present necessarily must fail to apply to the actual disease or the abnormal condition that does exist.

Looking at health and disease from the physical culture viewpoint, we find that diagnosis, important as it may be, serves as a guide to the nature of a diseased condition instead of a specific guide to treatment.

Because of the difference, then, in the theory of disease and in the treatment of disease and because of the relatively less need for exact diagnosis when physical culture is employed, physical examinations become less important. This is true in regard to the vast majority of abnormal manifestations that arise from functional disturbances. To arrive at a diagnosis, however, when organic disorders develop it becomes highly advisable, if not actually necessary, that sufficient physical examinations be given to determine the nature of the organic disorder. But even in chronic diseases diagnosis is less important when natural treatment is employed than when medi-

cal treatment is followed. For the natural treatment will have beneficial effects upon the whole body even though slight differences in treatment might be employed if the exact physical condition were known.

Physical
Examina-
tions for
Diagnosis

Physical examinations are not at all to be condemned. Many people who have died prematurely, even though their death may not have occurred until after the supposed allotted span of seventy years, could have or might have lived many years longer had they had physical examinations and learned the nature of their developing abnormalities of health. Nothing is to be gained by remaining in ignorance of one's physical status.

Many people do not have examinations *for fear* they will learn of some developing condition of disease. Many others fail to have examinations through cock-sureness of their physical robustness, ruggedness and immunity to disease. Both of these classes are in error. One can fight any foe better when the foe is known and in the open. One may have such an inadequate knowledge of what health is as to permit some



PHOTOGRAPH PACIFIC & ATLANTIC

Progress in stamping out ill health in regions where disease is rife through poverty and malnutrition, is to be noted. Health examinations are important accessories toward this end. This illustration shows school children under observation by a physician.

abnormal condition to develop to a more or less serious stage before recognizing the presence of this condition by grave symptoms.

The diagnosis of important diseases usually can be made with reasonable accuracy only when the indications of the disorder are sufficiently prominent. But long before such a diagnosis can be made it may be possible to determine that *some* abnormal condition is in the process of development. When this is determined by careful examination the disease that otherwise would have developed may be wholly aborted or made mild.

The art of diagnosis consists in learning all things possible about the patient's condition, from the taking of history to all various physical and chemical tests, then applying the process of reasoning, and finally arriving at *the most reasonable* conclusion as to the *probable* cause of the trouble. Various types of symptoms must be dealt with and weighed. Some symptoms are positively pathognomonic, that is, definitely indicating a certain disease; others may be practically pathognomonic; others have great weight, but do not indicate a disease with certainty; some are valuable only in a general way, indicating that the patient is ill (fever, for instance); and some are of no value at all (as constipation), being too common to aid in forming a diagnosis.

A diagnosis may be under one of five headings: anatomical, in which definite structural changes predominate; pathological, where the changes in the affected parts are characteristic; clinical, determined solely by the symptomatic evidence; presumptive, being a plausible diagnosis, but further evidence may alter it; differential, or the process of reasoning by which one determines between affections having more or less similar characteristics.

Aspects of
Diagnosis

Getting down to the actual examination of the patient, the *history* is important. Age, sex, occupation, civil condition (whether single or otherwise) and the residence are considered. Inquiry is made as to whether or not there has been any family tendency to disease, especially a particular disease. This may carry back to grandparents, rarely further back except in some cases of mental disease. The previous health and illnesses of the patient are inquired into; also the habits of

living and thinking—especially in case natural treatment is to be employed. Record then is made of the present symptoms, together with their onset and progression.

If no mention of certain conditions is voluntarily made by the patient, questions should be asked regarding such conditions as the digestion, elimination (by bowels and kidneys), menstruation in the case of females, pregnancies and miscarriages in women with such histories, the use of alcoholic beverages, coffee and tea, etc. In the case of men especially, it often is important to know whether there has been a venereal disease and sexual excess. This applies also to many married (and some unmarried) women. Often the questioner can determine various facts for himself merely by careful observation, also by being keen to catch some word or idea given without careful weighing by the patient. After the symptoms have been learned the questioning usually should follow along these lines so a more complete "picture" may be obtained of the case.

Diagnosis,
Confidential
Questions in

After the history taking comes the *examination proper*. This is supposed to acquaint the physician with the general state and functional activity of the patient's organs. A general examination is given first, then whatever special examination seems to be indicated by the history, the symptoms and the general examination. The examination is not just laying on of hands and the use of instruments. By *inspection* the degree of intelligence, the condition of nutrition, the color, dress, gait, general behavior, general character, posture and characteristic attitude of the patient are almost unconsciously noted. The face is carefully scrutinized, observing the skin, the condition of natural color or change of color, its texture, absence or presence of hair and change in pigmentation, the eyes (color, pupils, straightness or cross, etc.), and other features. The inspection takes in all parts of the body concerned in the patient's condition. This includes the hair, ears, mouth, teeth, lips, gums, tongue, palate, pharynx, nose, especially the nasal fossæ, the neck, including the thyroid gland, chest and abdomen, flexibility of the ribs during breathing, pulsation of the heart at the chest and upper abdomen, spine, sexual organs, and so on.

Palpation usually will be employed during part of this

inspection. This is examining by means of the hands, to feel the heart-beat, the vibrations of the chest, the skin texture, tone or tone changes in the tissues, location and size of organs or tumors and so on. *Per-cussion* follows or is used along with palpation. This is tapping the surface of a part with the finger or a ples-sor, usually tap-ping a finger lying flat on the part instead of tapping the part direct. This means is em-ployed to de-terminate the

density of a part and is helpful in outlining the various organs, fluid and gas collections and tumors.

Many things are taken into consideration during these phases of examination that cannot be considered here. To mention but a few, to give an idea as to the extent of an ex-amination, the movements of the chest, the abdomen and the shape of these regions are observed, and note made of any irregularity; enlarged veins are observed; floating kidney may be felt; tenderness or rigidity may be noted; etc., etc. Soft or hard swellings are noted; spinal motions are required to



Palpation
and Per-
cussion

PHOTOGRAPH EWING GALLOWAY

Complete physical examinations of the poorer children are provided by ever-increasing numbers of communities.

determine the condition and flexibility of the spinal column; the knee-jerk, pupillary reflex and other reflexes are tested.

Auscultation, or listening with the ear or the stethoscope over the part to the sounds made by heart, lungs and abdominal viscera, by the contracting muscles and other sounds as required, is employed after or along with palpation, sometimes before. Disease of the lungs or bronchi or of the heart can be determined fairly accurately in many cases by this method. It is the chief method of examining the heart, except by a cardiograph, and the lungs except by x-ray and fluoroscope.

Laboratory
Tests

Chemical tests are made as seemingly required: of urine, blood, sputum, stools, stomach contents, and discharges from the mucous surfaces, ulcers, etc. The urine especially is tested almost as a routine measure.

An examination covering the above points will usually yield enough information to permit a diagnosis to be made and proper natural treatment to be applied. To go into detail here regarding the various examinations of the various parts of the body would serve only to confuse the reader who does not have a fairly thorough knowledge of allied subjects required of a healing practitioner. But there are several examinations or tests that the reader will desire acquaintance with. These we shall briefly discuss.

Methods of taking the *pulse*, *temperature* and *respiration* are discussed under *Nursing* (Section 3). *Weight*, normal and abnormal, has been discussed in detail in Volume IV, together with measurements.

Vital lung capacity is the greatest amount of air one can exhale after the fullest inhalation. It is also called breathing capacity and, especially, respiratory capacity. The average for men is about 240 cubic inches; for women about 180 cubic inches. It is governed by the degree of flexibility of the ribs and the attached cartilages; the strength of the intercostal and other breathing muscles; the length, breadth and thickness of the thoracic cavity; the tone of the muscles and the practice or neglect of deep breathing. The method of taking the vital capacity is described in Volume III. Strength tests will be found described in the same volume.

Vision tests are by means of the Snellen charts (or

Snellen's test types), which consist of cards containing letters of graduated sizes. These letters are of such size that the normal eye can see them clearly at specified distances, the largest letters being at the top and progressively smaller letters placed in lines below. On some of these charts there also are cross-lines and other markings for the testing of the vision as regards astigmatism and other refractive errors. Testing the perception of colors is done by means of small skeins of yarn of paired colors and shades, the patient being asked to match colors and shades; sometimes by other tests also.

Tests of
Vision

The condition of the optic nerve and the inner coat of the eye (the retina) is determined by the ophthalmoscope, by which the examiner looks directly into the eye through the pupil, light being directed into the eye by the instrument. By means of these various tests the acuteness of vision and refractive errors and the normality or disease of the retina and the optic nerve are determined; also color blindness or color perception.

The pupil is examined to determine its reflex action. The contraction of the pupil when exposed to light and its dilation when covered or in dim light is the pupillary reflex. Contraction of the pupil when the vision is centered on a near object from a distant object is called the ciliary, or accommodation reflex. Such reactions or reflex actions are of great assistance in determining the condition of brain or spinal centers—whether normal, inflamed or irritated or degenerated or paralyzed.

Hearing is tested by a sounding appliance, usually a watch or a tuning fork, placed at various distances from the external ear. It is necessary that the examiner always use the same instrument or one of set pitch, tone and volume. Air-conduction of sound is tested first, by distance of the instrument from the ear. Usually bone conduction is not taken if air-conduction is normal or not wholly destroyed. Bone-conduction is determined by placing the watch or the handle of the tuning fork on the mastoid process (back of the ear), on the forehead or on or between the teeth. Sometimes whispering at specified distances is used for testing acuteness of hearing. By these tests the condition of the nerves of hearing and of the various internal structures concerned with hearing is deter-

mined and to some extent from these the likelihood of hearing defects being remedied. Ear speculums are employed to note the condition of the ear-drum, whether or not wax is present, and perhaps inflammations.

The Nose

The *nose* may reveal externally an abnormal condition that interferes or is likely to interfere with proper breathing, especially contracted nostrils or a crooked nose or a depressed bridge. This inspection never is complete, however, so the nasal speculum is employed to separate the outer nostril wall and the septum, to permit better vision into the nostril with natural or artificial light. The condition of the septum, whether straight or deviated, the extent of deviation, the condition of the mucous membrane, the presence or absence of ulcers or bony spurs and the condition of the turbinates are the chief conditions disclosed by nasal inspection.

The *mouth* is inspected merely by having the patient open it wide, so the tongue, teeth, cheeks, gums, tonsils and palate may be inspected. For the outer surfaces of the gums the teeth are closed and the lips widely separated. The color, tone and general condition of the gums are noted and note made of the absence or presence of indications of pyorrhea. The gums often give a good indication of the presence or absence of anemia, as do the inner surfaces of the eyelids. The size, shape and color of the tongue are observed, for this organ may tell considerable regarding one's condition. If any of the teeth are known to be devitalized (nerves dead or extracted) x-ray examination of the teeth-roots may be made to determine whether or not there are abscesses at these points. The condition and regularity of the teeth are noted. To examine the back of the oral cavity a tongue depressor may be used to hold the tongue down, or the tongue may be grasped with a clean towel or handkerchief and pulled forward.

The Throat

Usually if one will stand before a mirror while yawning one will be able to get the "feel" of the throat muscles at the time the tongue is down and the vision uninterrupted well back into the throat and be able to duplicate the open view at will. The tonsils are carefully inspected for size and surface condition and inflammatory signs, and the throat for mucous accumulations, congestion and so on. Laryngoscopes are used to inspect the larynx, though reflected light by means

of a mirror, with a small throat mirror, will permit inspection of the larynx and the vocal cords, if the tongue can be controlled.

Skin. The skin is observed for texture, color, cachexia (as in cancer, malaria and severe anemia, especially pernicious anemia), jaundice, eruptions and their type, condition of the pores, sweating, swelling or edema and its nature, white areas, colored spots, etc. The Skin

Nails. The nails are inspected for what information they may give. The nails may be short from having been bitten off during nervousness, worry, anxiety, etc. Transverse ridges may indicate acute illness that interfered with development. White spots are caused by trivial injuries. Clubbing of the fingers usually denotes chronic chest diseases. In some cases the toenails also show the same thickening and clubbing. The nails show cyanosis in chronic diseases earlier than this appears elsewhere. A capillary pulse is present (felt by careful pressure) in aortic regurgitation. In hemorrhagic diseases there may appear hemorrhages under the nails. The nails become dry and brittle and often deformed in serious nerve disorders, and ridged lengthwise in general nervousness. Syphilis, diabetes, alopecia and pemphigus, also sometimes hysteria, may cause loss of the nails. Certain skin diseases, such as psoriasis, eczema, ringworm and favus, as well as dermatitis and other affections, may affect the nails, even to causing them to atrophy and shed.

Hair. The usual conditions of the hair revealed by examination have been discussed, with appropriate remedies, in Volume V. The scalp and the skull are examined, for eruptions, nodules, depressions, etc.

Thyroid. The thyroid is examined by palpation. It may show simple enlargement, lengthening, broadening, hardening, fluctuation, or nodules. The x-ray also is used to examine this gland. If thought to be abnormal, its function often is tested by fractional feeding of thyroid gland, keeping a careful check upon the heart-action during the test.

The *lungs* are examined by inspection, to detect chest motion and irregularities; by palpation during speaking by the patient, when certain "feelings" may detect some abnormal condition; by percussion, to determine solidifications or cavi- The Lungs

ties; by auscultation, to detect changes in breathing sounds and sounds produced by speaking or coughing; and by the x-ray to detect solid areas or cavities.

The *bronchial tubes* are examined by the same methods, especially auscultation and the x-ray.

**Use of
Stethoscope**

Heart. The stethoscope or phonendoscope is used for auscultation of the heart, to detect altered heart sounds. The blood pressure will determine the tone and action of the heart muscle; the x-ray will detect alterations in the size and location of the heart; the fluoroscope will reveal abnormalities of the heart-beat; and the cardiograph, constructed on the principle of the sphygmograph (which is used for recording on smoked paper the excursions of the pulse) will record the movements of the heart, for determination of the action of this organ. During examination by auscultation the patient usually exercises so as to speed up the heart-action.

**Abdominal
Symptoms**

The abdomen is divided for purposes of study into nine regions. These are: The right and left hypochondriacal, the right and left lumbar and the right and left inguinal on either side, comprising six regions. The epigastric, the umbilical and the hypogastric (or pubic) constitute the remaining three regions, these being located one beneath the other in the central line of the abdomen. These regions are examined by inspection, which may reveal internal or external abnormalities; by palpation, during which relaxations, tensions, growths, excessive peristalsis of the intestines, pain, collections of fluid, hernia and certain other abnormal conditions may be detected; by percussion, which outlines organs and reveals the presence of gas, fluids, solidifications and enlargements; sometimes by auscultation to determine the action of the stomach and intestines and to differentiate certain abnormal enlargements, and by the x-ray.

Before the x-ray or the fluoroscope is employed for the abdomen the patient takes a meal of an opaque substance, such as a "bismuth meal," which produces a dark shadow in the x-ray picture or the fluoroscope, thus aiding in outlining the stomach and the intestines; sometimes a similar substance may be given by enema. Extra solidifications may be revealed by these tests or examinations when in any abdominal structure, by producing shadows that normally are not produced;

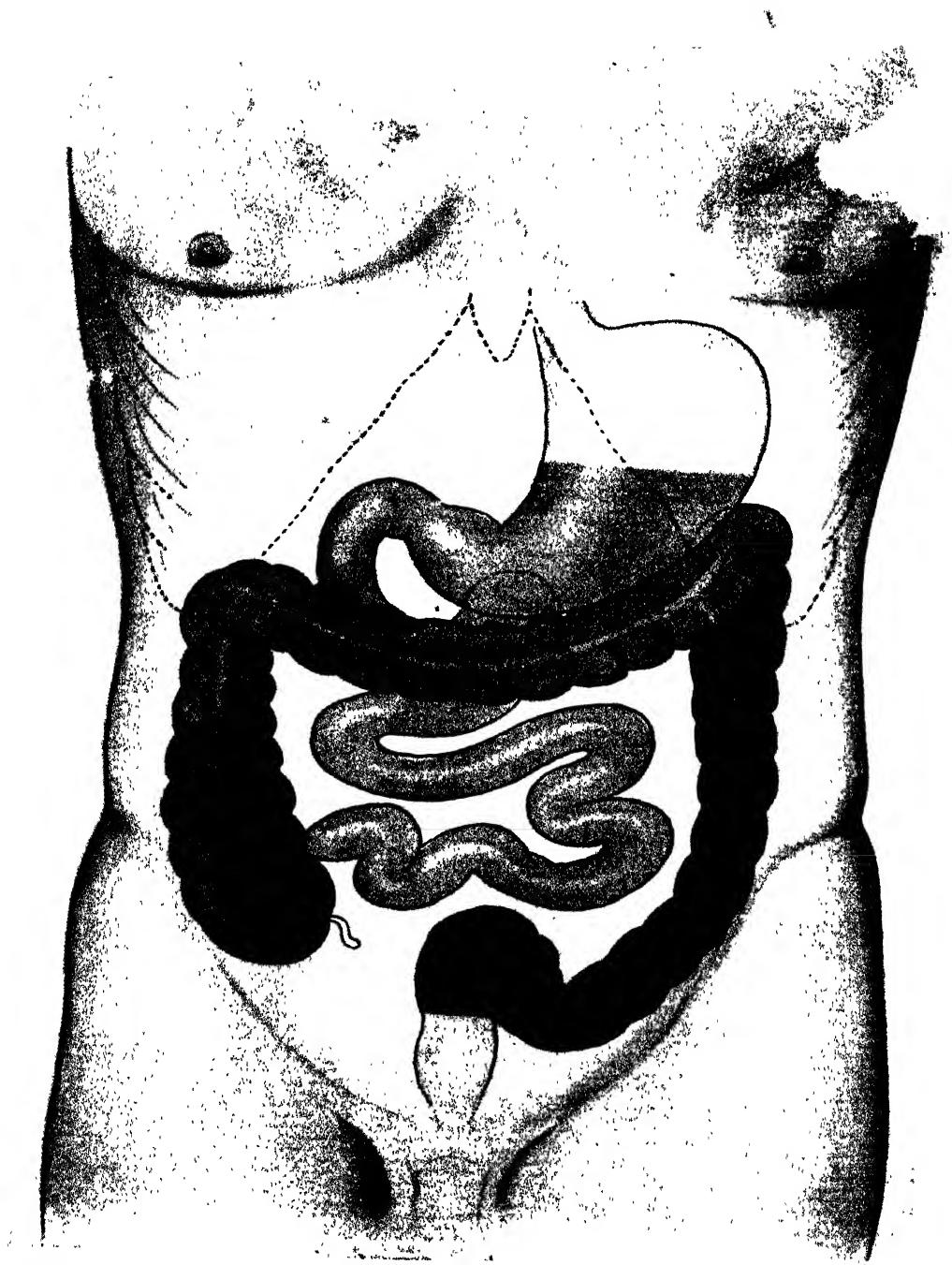


PLATE 89. Condition of digestive tract and contents excreting waste regularly when taking three meals in a day. Green portion shows breakfast as contained in descending colon. Red portion shows mid-day meal as contained in ascending and transverse colon. Yellow shows last meal of day in stomach and small intestines.

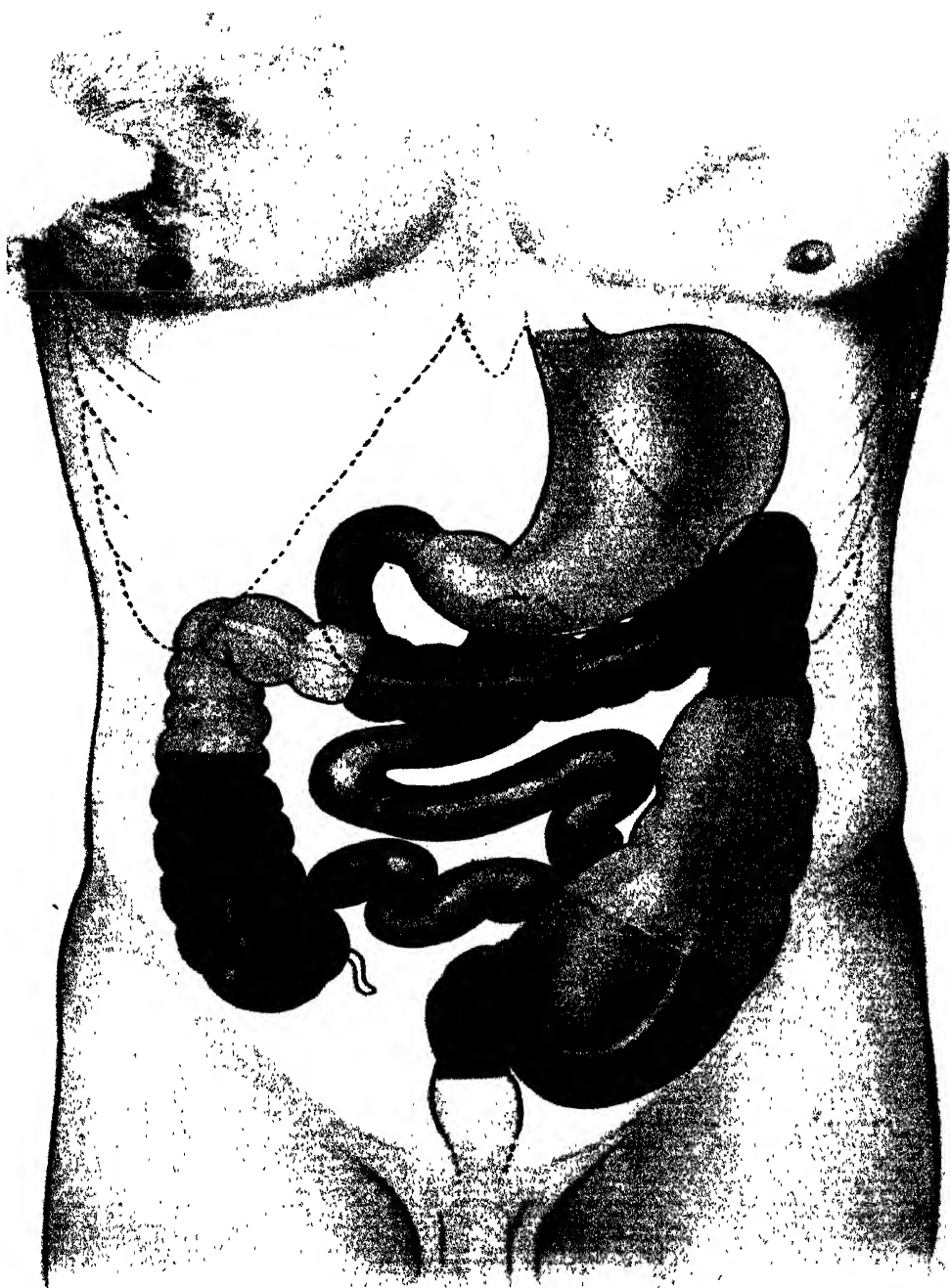


PLATE 90. Condition of stomach and digestive organs when constipation exists. Green portions indicate waste- and digestion-products of breakfast for three separate days. Red portions indicate products of mid-day meals for three days. Yellow portions indicate evening meals for three days. This condition may ensue if the number of evacuations daily fails to equal the number of meals taken.

or there may be absence of shadows when normally they should exist.

The *stomach* is further tested by means of "test meals," which are withdrawn after definite periods by means of siphonage, lavage or the stomach-pump, the stomach contents then undergoing inspection and special chemical tests to determine the nature of the stomach secretions and digestive capacity. The upper intestinal tract may be examined in a similar manner, to determine the nature of the stomach digestion, the presence and action of bile, and the nature and capacity of the pancreatic secretion. Positions of the stomach and the intestines are determined accurately by the x-ray.

Digestive
Organs

The *gall-bladder* may be examined by palpation or x-ray, or its contents drained by siphonage and then chemically examined.

The *liver* is examined mainly by palpation, percussion and the x-ray. In addition the bile and the gall-bladder, which are intimately connected with the functions of the liver, are also examined.

The *intestines* are examined by palpation and percussion, to determine fecal accumulations and the presence of gas or tumors, by the x-ray and the fluoroscope for position and growths, and for chemical activity by examination of the stools.

The *rectum* is examined by inspection through the proctoscope or the rectal speculum, by finger (digital) examination and by the x-ray. Inflammations, hemorrhoids (or piles), fistula and fissure, fecal impactions and growths and ulcers are looked for here, also prolapse.

The *kidneys* are examined by x-ray to determine the presence or absence of stones or gravel, growths or abnormal size or shape; by palpation (also x-ray) for detection of change in position (dropped or ptosed, movable or floating kidney); and for functional action by chemical and microscopic examination of the urine; also by collecting urine from the individual ureters through the bladder by catheter, to determine which kidney may contain a stone, tuberculous process, or other abnormal condition.

The *spleen* is examined by palpation, percussion and the x-ray for location and change in size. It is not examined for function, since its exact functions are not definitely known.

The *pancreas* is examined for function by examination of the stool and the urine, and for certain abnormal conditions by the x-ray.

The *spine* often is insufficiently examined. Among the conditions for which examinations are made are arthritis and vertebral changes in position, by the x-ray and palpation; inspection and palpation, sometimes by the x-ray, for spinal curvature; and abnormalities of tension of muscles and ligaments by palpation of individual vertebræ as well as by pressures along the sides of and in various directions about the vertebræ.

A test used fairly frequently today should be viewed with caution; that is, the spinal puncture. For this test a long needle is thrust through the soft tissues of the lumbar region of the spine, with the patient sitting well bent forward (or sometimes reclining with the back arched), the needle passing

between two of the vertebræ (fourth and fifth lumbar) and entering the spinal canal. The spinal fluid escapes from the canal through the needle. The force of the escape is observed by the physician, and the fluid is chemically and microscopically examined—for tuberculosis, meningitis, syphilis. This puncture sometimes is given also to



PHOTOGRAPH EWING GALLOWAY

In the complete physical examination a test of importance is the knee-jerk, or patellar reflex, elicited as shown by use of a rubber hammer or by the edge of the hand striking the tendon beneath the patella or knee-cap.

withdraw an excess of fluid (as in hydrocephalus) and sometimes to inject an anesthetic solution. In some cases the patient collapses and occasionally suffers much distress or some prolonged abnormal condition as a result of this puncture.

There are numerous involuntary reactions, called reflexes, elicited by stimuli imparted to the surface nerves, that inform the examiner as to the condition of spinal centers. Among the more important of these are the patellar reflex or knee-jerk (see illustration); the Achilles reflex, in which the calf muscles contract when the tendon of Achilles is sharply struck; the cremasteric reflex, a contraction of the scrotum when the inner side of the thigh is lightly scratched; and the epigastric reflex, contraction of the upper part of the rectus abdominis when the skin in the region of the epigastrium is scratched.

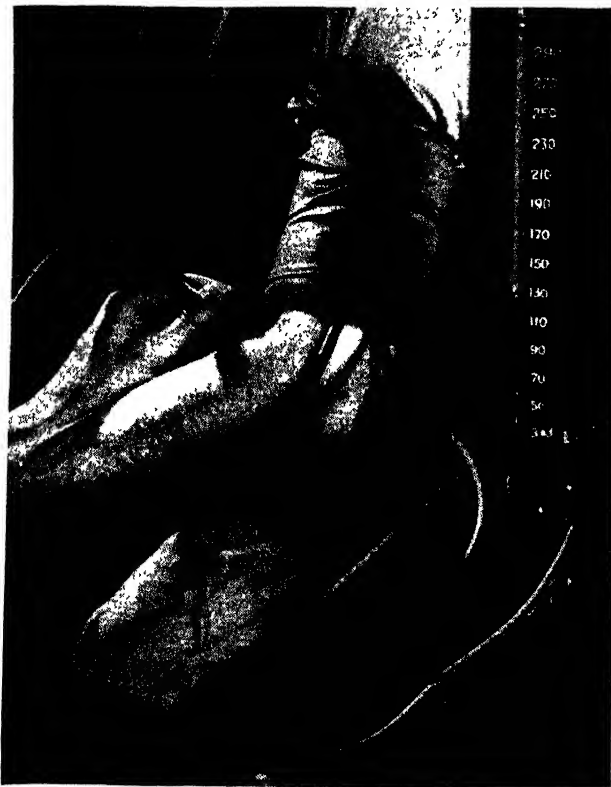
The *sexual organs* demand examination frequently. In men the organs are examined externally by inspection and palpation, to determine the state of the penis itself, the meatus or urinary outlet, the skin of the penis or the glans, the scrotum, testicles, spermatic cord and veins, the epididymis, and for scrotal hernia.

Sex Organs

Internally, the male is examined by the finger per rectum for hemorrhoids, growths, and for prostatic conditions and the state of the seminal vesicles. For the urinary passage the urethral sound or a urethroscope is employed, the sound detecting strictures, the urethroscope detecting inflammations and abnormal conditions deep within the urethra.

A cystoscope is employed to examine the inner surface and cavity of the urinary bladder. It may detect tuberculous or other abnormal nodules or growths on, or inflammation of the bladder wall or stones in the bladder cavity, also certain conditions of the outlet of the bladder. Urethral discharges are examined microscopically for spermatozoa, gonorrheal or other microorganisms.

In the female, the external sexual organs are examined by inspection and sometimes palpation. The uterus and the ovaries may be examined digitally by the rectum, though vaginal examination usually is employed, or the two may be used. The vagina, also the mouth of the uterus, may be examined



PHOTOGRAPH EWING GALLOWAY

In the physical examination important evidence is revealed by the sphygmomanometer, an instrument which records the blood pressure upon a mercurial tube (manometer) as here shown, or upon a dial manometer. This instrument is used in conjunction with the stethoscope, which determines the comparative pressure of the diastolic action (dilation) and the systolic action (contraction) of the heart beat.

discharges may be examined by microscope.

Blood pressure is becoming more and more a routine procedure during physical examinations. This is taken by means of one of two types of a special apparatus, called a sphygmomanometer. Both have a rubber arm-band in the form of a bag enclosed in cloth, a tube from this band leading to the indicator and another tube leading to an inflating bulb with a valve for controlling the inlet and escape of air. In the older type the recording instrument is a column of mercury in a vertical glass tube, the background of which is marked off in millimeters. The other and newer type of instrument

by finger method. Inspection usually follows palpation of the vagina, a vaginal speculum being inserted into the vagina to separate the walls, a light then being reflected into the cavity, to examine the walls, the cervix and opening of the uterus.

By palpation through the abdomen, especially when combined with palpation through the vagina (bimanual examination), the uterus may be examined, as for size, growths, and deviations from normal position. Mucous

contains a dial, with a hand that revolves to markings corresponding to the millimeter markings on the older apparatus.

When the arm-band is in place the bulb is fairly rapidly squeezed repeatedly until the column of mercury or the dial hand is well above (20 points or so above) the point at which the artery is obliterated, as determined by a finger placed on the pulse or by a stethoscope placed just below the bend of the elbow in front (this latter being the more accurate method). Then the valve on the bulb is opened sufficiently to allow the air in the arm-band to escape slowly and the indicator to drop until the pulse is barely palpable to the finger or the pulse-beat is barely audible in the stethoscope. This is the systolic blood pressure, as shown on the indicator.

The air is allowed to escape still further until the pulse-beat is no longer heard in the stethoscope. The indicator reading shows the diastolic blood pressure. This pressure cannot be taken well by the finger on the pulse. The difference between the systolic and the diastolic pressures gives the pulse pressure, which normally varies from 25 to 40 mm. (millimeters) of mercury. It should be approximately one-third of the systolic pressure.

The readings are always in millimeters of mercury, since the old method employs mercury that mounts in a column marked in millimeters.

Systolic blood pressure is the pressure in the arterial system produced by the heart's contraction or *systole*. It represents the total heart energy.

Diastolic blood pressure is the pressure in the arterial system occasioned by the period of rest, or *diastole*, of the heart, that is, the period between the heartbeats. It is the sum of the forces acting against or contrary to cardiac force.

Pulse pressure represents the efficient work of the heart and indicates the extent to which it overcomes the diastolic pressure (peripheral resistance). It is the excess of pressure over and above that required to equalize the diastolic pressure, which opens the aortic valves, renders the work of the heart potential in the arterial walls, and forces the blood onward into the capillaries.

Blood pressure is maintained by several factors: strength of the heart-beat, elasticity of the arteries, resistance offered

Blood
Pressure
Measuring

2838 BLOOD PRESSURE DETAILS

by the capillaries, state of the veins, and tone and usual activity of the general muscular system. The systolic pressure is the pressure created by the rush of blood at the time of the heart contraction, or systole; the diastolic pressure is that recorded during cardiac diastole or rest, immediately before systole; the difference between the two is the pulse pressure and denotes the tone of the heart-muscle.

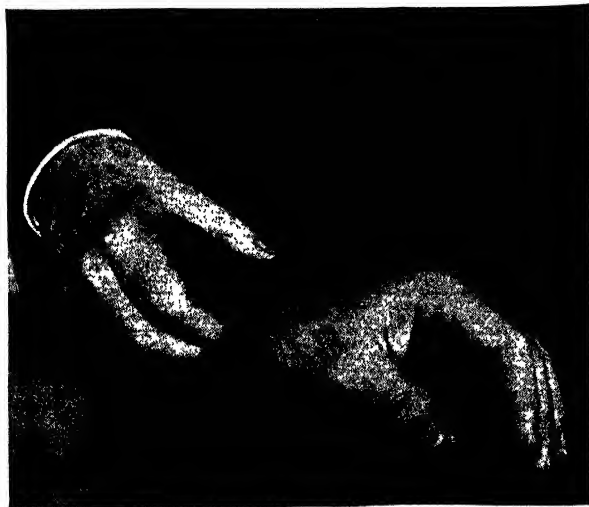
Factors in Blood Pressure

From the above it will be understood that if the heart is diseased and weakened or powerful, if the arteries are relaxed or hardened, as in arteriosclerosis, if the capillaries are in a state of contraction or relaxation, if the veins are relaxed or contracted, or if the muscular system is degenerated from disuse or is powerful and regularly exercised, the blood pressure will be modified one way or the other accordingly. Certain nervous states and certain toxins have the effect of raising or lowering the blood pressure, by modifying one or more of the factors concerned in its maintenance.

Normal blood pressure (systolic) is about 100 mm. above the age in men and from 5 mm. to 10 mm. less in women. But systolic pressure above 45 years of age does not follow this ratio, and a blood pressure of over 145 is not now considered normal in persons over 45 years of age. So that a blood pressure of 145 in a

man of 45 years of age would be normal, but a blood pressure of 160 in a man 60 years of age would be too high.

The sphygmograph is used to record graphically the heart-action. It consists of a special attachment to a sphygmomanometer with



In taking the pulse, the first two fingers are usually employed, because the thumb has a local pulse-beat. It does not serve accurately in pulse-taking.

lever arrangement that marks on smoked paper the pulse-beats, which appear as a series of irregular elevations and depressions. This record is called a sphygmogram.

The *pulse* determines the condition of the heart-muscle and the heart-action. It may be taken at one of several points, chiefly at the wrist, the angle of the jaw and the temple. Usually it is taken at the wrist, because of greater convenience. During anesthesia, the anesthetist keeps track of the heart-action by getting the pulse at the angle of the jaw. Just before birth the pulse varies between 120 and 150 beats to the minute, the slower pulse rate being found usually in male infants, and the more rapid pulse rate in females. In young infants the pulse will average about 100 beats a minute, decreasing in frequency as the child grows older, so that a pulse rate of about 85 is to be found in children between the ages of ten and fifteen years. By the time that puberty is well established the pulse rate drops to 78 or 76. The normal adult pulse is about 72 in men and slightly higher in women.

In the aged the pulse frequently drops to 65 or even 60 although general weakness, especially of the heart muscle, will frequently cause the pulse rate to run to 75 or 80.

The pulse is examined for its rate, regularity, size and quickness. The rate is determined by counting the beats by a watch for not less than one-half minute. If there is any irregularity it should be counted for a full minute, preferably counting the number of beats in each period of five or ten seconds, to note variability. If it is too rapid to be sure of correct count, it should be counted every second beat and the result doubled. If some of the beats are too light to record with the finger, the heart should be auscultated (listened to with the stethoscope) and the count made in this way.

Testing
the
Pulse-Rate

Slight influences modify the pulse-rate. In many cases, the mere fact that it is being counted sends it speeding. The pulse usually is five to ten beats more a minute in the afternoon and the evening than in the forenoon. It is faster for an hour or two after meals, especially hot meals or full meals, after drinking tea, coffee and alcohol and after smoking. Changing from lying to sitting raises the pulse from three to eight beats a minute, and from sitting to standing raises it from

four to eight beats a minute. Exercise has marked influence upon the rate, slight exertion often sending the beat up 30 more a minute, and strenuous exercise may double or more than double the rate. In those debilitated the pulse may increase out of all proportion to the physical effort made. The rate should drop down to normal within three minutes after discontinuing ordinary exercise. It is to determine the time required for this restoration to normal that the pulse is taken both before and after exercise. Those in whom the pulse rate increases out of proportion to exertion or is reduced to normal markedly slower than normal usually are denied participation in sports of a competitive nature for which physical examinations are required.

Heart-Beat

A diminished frequency of pulse may be present without any evidence of disease. A rapid heart-beat is called tachycardia. A heart-beat markedly below normal is called bradycardia. In the most pronounced degree this usually follows injury to the eleventh cranial nerve (the accessory or spinal accessory nerve). Sometimes degeneration of the heart-muscle causes abnormally slow pulse. An infrequent pulse usually comes on in the latter half of life.

In health, the pulse-beats are regular in rhythm and volume. A slight variation may exist without any pathological condition being present, nervous conditions not infrequently causing irregularity. Arrhythmia is the term used to denote irregularities of heart-action.

The pulse may be large or small, relating to the sensation imparted to the examining finger. A large pulse indicates that a large volume of blood is being forced into the arteries at each heart-beat, and denotes or points to a powerful ventricle and unobstructed vessels. A small pulse may be present in some heart-valve diseases which weaken the effect of the ventricle action, or when there is obstruction between the ventricle and the wrist (aneurysm, tumor, aortic stenosis); or the artery may be abnormally small. A weakly beating heart is the most obvious cause.

Quickness of the pulse refers to the suddenness of the expansion of the vessel, not to the rate of the pulse. The quick pulse gives a sudden tap to the finger, while in the slow pulse there is a gradual lifting or heaving of the artery, the pressure

lasting for an appreciable time. In quick pulse the blood pressure usually is low, there being reduced resistance to the heart - action. The slow pulse is due to some manner of obstruction somewhere along the line, as in reduced size of the heart - opening into the aorta or contracted surface vessels.



Illustrating the use of the clinical thermometer in armpit. The mouth is a more satisfactory location for obtaining bodily temperature. The rectum is the most advantageous location under certain conditions, as stated.

The *temperature* of the human body undergoes less fluctuation in health than almost any other feature. The usual normal, taken by mouth, is 98.6 degrees F. When taken by rectum it is necessary to deduct one-half degree to obtain the mouth temperature; while when taken in the armpit it is necessary to add one degree. Unless specified otherwise, mouth temperature is referred to when the temperature is given. Numerous abnormal states cause an elevation of temperature, or fever. A subnormal temperature appears in conditions of lowered vitality. The temperature drops suddenly in certain conditions, especially in the crisis of some diseases. For instance, it may drop from 106 to 96 within ten hours in the crisis of pneumonia. The temperature is low in chills, but rapidly rises if a fever stage follows. For convenience, temperatures are classed as: Subnormal, below 97.2 degrees; normal, 97.6 to 99.00 degrees; subfebrile, up to 100.5 degrees; slight fever, up to 101.5 degrees; moderate fever, morning 101.5 degrees, evening 103.0 degrees; high fever, morning 103 degrees, night 105; hyperpyrexia, over 106 degrees.

Temperature

Blood-Count



The clinical thermometer when used in the mouth to take temperature is kept beneath the tongue for two minutes before being withdrawn for reading.

By the *blood-count* is meant the counting of the number of blood-cells in certain minute fields on the glass slide under the microscope and from this estimating the number of blood-cells in a cubic millimeter of blood. We do not need to go into this examination, as it is more or less intricate. The examination is

made to determine the degree of anemia or the normal condition of the blood and to determine the condition of the cells themselves. Both the red cells and the white cells are counted, but by different tests on the same or on different slides. There are different kinds of white blood-cells, so the determining of the percentages of each kind is called a "differential count."

Generally it is considered that the normal number of red cells in the blood of a man is 5,000,000 to the cubic millimeter, while in a woman the number is 4,500,000. In high altitudes the count increases by 500,000 to 1,000,000. Starvation also raises the count. Dilution of the blood by eating and drinking reduces the count, as does obesity. In anemias the count is reduced. The white cells in adults are normally about 7,000, but vary from 5,000 to 10,000 to the cubic millimeter.

Numerous conditions increase or decrease both red and white cells, but alter the count of the two types of cells not necessarily in the same direction. Infections increase the white cells greatly, as these are the scavengers or policemen of the body and are called out to combat the bacteria.

Color index is the term used to express the relationship between the amount of hemoglobin actually present in a person's blood and the amount that theoretically should be present with the same number of red blood-cells. The normal color index is 1.0, meaning that there is 100 per cent. of hemoglobin associated with 5,000,000 red blood-cells. Diminishing both the hemoglobin and the red cells proportionately will still leave a color index of 1.0. But if the hemoglobin is reduced more markedly than the red cells the color index will be below 1.0, as it is in chlorosis (green-sickness) and splenic anemia. On the other hand, in pernicious anemia the cells are reduced in greater proportion than is the hemoglobin and the color index is above normal, sometimes as high as 1.9. The usual color index is about .85.

Urinalysis (urine analysis) is routine with a great many physicians and always in hospitals and sanitariums. By this much can be learned of the individual's general condition. The urine is tested for several conditions and contained substances: color, transparency, odor, reaction; solids: chlorides, phosphates, sulphates, oxalates, urea, uric acid, albumin, various forms of albumin or protein, blood, sugar, acetone, diacetic acid; microscopically, for blood, leucocytes, pus, spermatozoa, parasites, bacteria, sediment, epithelial cells, tube casts (which may be granular, epithelial, blood, fatty, waxy, pus, fibrinous).

Most people know nothing of what certain tests and examinations of the urine mean. If they have a urinalysis made and receive or see the report, they must ask what certain things mean before they have any idea as to whether their urine shows normal or abnormal conditions. It is not expected that lay readers will make their own diagnoses from urinalyses, nor from other tests and examinations. But following will be given the meaning of certain findings upon urinalysis, that they may know whether or not there are conditions that should receive attention.

Factors in
Urinalysis

A *qualitative* test is one made to determine the presence or absence of certain urinary constituents. Any quantity of urine above an ounce or so may be sufficient. A *quantitative* test is one for determining the amount of certain constituents. All the urine passed within 24 hours is required for such a test. In adults the daily (24-hour) amount passed is about

50 ounces. Normally, more is passed by day than by night.

An increased *quantity* of urine is caused usually by the final stage of cirrhosis of the kidney (chronic interstitial nephritis), sometimes enormous quantities, by diabetes mellitus (sugar diabetes) and diabetes insipidus, and hysteria; also following an attack of epilepsy or of angina pectoris, when convalescing from acute diseases, and occasionally in numerous other conditions, as well as after copious drinking, after eating watery foods, such as watermelon, after eating foods containing citrates or tartrates and after using diuretics (agents that increase urine flow), including certain drugs, tea, coffee, beer and whisky. The quantity becomes greater at night instead of by day especially in diabetes, but also in arteriosclerosis, heart disease and kidney disease. In case of enlarged prostate gland in the male there is disturbance of sleep from frequent urination, the enlargement preventing complete emptying of the bladder at each time.

The quantity of urine is decreased especially in diarrhea, prolonged vomiting, lead colic and acute nephritis (kidney disease); but also in numerous other conditions, such as abdominal tumors which interfere by pressure, late in ascites or abdominal dropsy, kidney congestion, chronic gastritis, gout, intestinal obstruction, melancholia, peritonitis and pleurisy with effusion; also after abstention from fluids and after excessive perspiration. It naturally is reduced in summer and increased in winter, as the skin is more active in the former and less active in the latter.

The normal *color* of urine is amber. Pale urine usually is due to anemia, cirrhosis of the kidney, diabetes, or hysteria, or a large intake of fluid. A high color is present in severe prolonged constipation, peritonitis, gangrene, suppuration, gout and lithemia. Bile pigment gives a yellowish, brownish or almost blackish color, with a yellowish foam on shaking. A red urine may be due to fresh blood, a reddish urine to rhubarb, senna and certain other drugs. Blood pigment dissolved in the urine gives a reddish brown, coffee-colored or black shade to the urine. Milky urine may be caused by neurasthenia (an excess of phosphates in the urine), by foods, especially starches in excess, rarely in nephritis, and sometimes by obstruction of the thoracic duct from tumors or injuries.

The normal *odor* of urine is characteristic. An odor of ammonia may result from decomposition of the urine, as in case of cystitis (inflammation of the bladder). In diabetes there is a fruity odor from acetone (as of over-ripe apples), which may pervade the entire room if the bedding has been stained with the urine. Asparagus, cubebs, turpentine, copaiba, menthol, valerian, asafetida, saffron and other substances give peculiar odors to the urine, each more or less characteristic.

Normal urine is *transparent*, though upon standing there may settle a slight cloud of mucus. After a heavy meal the urine may be alkaline and phosphates may be precipitated, making the urine cloudy. The transparency may be destroyed by pus, epithelial cells, chyle and milk, or there may be merely a turbidity from any of these.

Normal urine gives an acid *reaction*. A total acidity of a 24-hour specimen of urine approximates one or two grams of hydrochloric acid. Increased acidity results from a meat diet and mineral acids. It also occurs in gout, rheumatism, many fever diseases and in such digestive disturbances as are associated with decreased stomach acidity. An alkaline urine that persists usually is due to decomposition of the urine in the bladder, as in cystitis. A vegetable diet rich in alkaline substances will cause an alkaline urine, but only for a short time after each meal. Any condition causing retention of the urine causes an alkaline urine. Reaction of urine is taken with litmus paper. Acid urine turns blue litmus red, while alkaline urine turns red litmus paper blue. An amphoteric urine, which contains certain acids and alkalies, will turn red litmus blue and blue litmus red. This condition has no importance.

Chemical
Qualities
of Urine

The *specific gravity* is the weight or density of the urine as compared with distilled water. The specific gravity is taken with a urinometer. In single specimens of urine the specific gravity varies from 1.001 or 1.002 (as after drinking much water or beer) to 1.040 in case of high fever or as high as 1.070 in diabetes. But in health the average specific gravity of a 24-hour specimen is between 1.015 and 1.025. High specific gravity is found in diabetes mellitus, acute gout, high fever, kidney congestion, acute kidney disease, leukemia; also

after heavy meals and heavy physical exertion, long retention of the urine, vomiting, diarrhea, and profuse perspiration. Low specific gravity (under 1.010) is found in anemia, cirrhosis of the kidney, diabetes insipidus, hysteria, nervous polyuria, after an epileptic attack; after fasting, copious drinking, in convalescence from acute disease and from taking diuretics.

Urinary
Solids

Urinary *solids* normally amount to 60 to 70 grams in 24 hours. If there is a constant reduction below this the excretion is radically defective and demands investigation. The elimination of solids is decreased in certain affections of the structure of the kidney concerned with excretion, but may be due to other abnormal conditions also. One may estimate with fair accuracy the number of grams of solids in the urine by multiplying the last two figures of the specific gravity (24-hour specimen) by 2.33, which gives the amount of solids in 1000 cubic centimeters. Thus, if the specific gravity is 1.025 and the total quantity 1500 cubic centimeters (c.c.), multiply 25 by 2.33, which gives 58.25 (grams), representing that in 1000 c.c. Since the total quantity of urine was 1500 c.c., add the half of 58.25 to 58.25, which gives 87.37 grams total solids for 1500 cubic centimeters.

The clinical significance of the *chemical and microscopical findings* in the urine follows:

Normally there should be 10 to 15 grams of *chlorides* in the urine. These are increased especially in convalescence from pneumonia and fevers, in diabetes insipidus and when large collections of fluid (dropsical effusions) are being absorbed. They are markedly decreased during starvation, in acute pneumonia, in most fevers, while dropsical effusions are increasing, in many serious digestive diseases and in melancholia, nephritis, rickets, and acute rheumatism.

Phosphates normally are present in urine to the amount of 2 or 3 grams. They are decreased particularly in pregnancy, nephritis, gout, during an attack of malaria and on a vegetable diet. There often is an increase in dyspepsia, phosphatic diabetes, some digestive disorders and in general in serious nervous diseases, as of the brain, the spinal cord and in bone diseases.

Sulphates normally constitute 2 grams of total solids. They are increased in wasting diseases, since they are derived

from the breaking up of albuminous substances in the body. In cancer of the pylorus, both forms of diabetes, fevers and pneumonia they are increased.

Indican is a compound of sulphate, formed from intestinal putrefaction. Normally it should be decomposed by the liver. When present in the urine it denotes not only intestinal putrefaction, but liver insufficiency. Sometimes an excess of indican in the urine is significant of cancer of the stomach, while in others it points to obstruction of the small intestine. Residence in the tropics, a red-meat diet, constipation, intestinal toxemia and various other conditions give rise to indicanuria.

Oxalates are excreted in only very small amounts daily, but may be increased where there is carbohydrate fermentation and after eating rhubarb, tomatoes, gooseberries, cabbage, figs and certain acid fruits, as well as after drinking tea, coffee or cocoa. As oxalates are eliminated in the form of sharp crystals, they may irritate the urinary passages and give rise to a mistaken diagnosis of kidney stones. If retained they may form stones. They often are found in neurasthenia and nervous disturbances, due usually to disturbances of digestion and metabolism causing the nervous disorders, and not to the latter.

Urea is the form in which most of the nitrogen is eliminated from the body, there normally being about 30 grams daily. Proteins taken in as food and decomposition of the body tissues form the urea. Hence it varies much, depending upon the nature of the diet and the stress which the body undergoes. It is much increased in fevers, in wasting diseases, such as pernicious anemia, in acute rheumatism and pneumonia, in leukemia and in diabetes from the great intake of food usual in this disease. Urea is decreased in abnormal liver conditions which prevent or interfere with its formation, as in cancer and in kidney conditions which prevent its elimination; also in Addison's disease, anemia, general paralysis, lead-poisoning, chronic rheumatism, rickets, starvation and a few other abnormal conditions and diseases.

Increase and
Decrease of
Urea

By quantitative estimates of urea or by estimation of the total solids in the urine the severity of nephritis may be fairly accurately gaged. When the urea is eliminated in deficient amounts there is likely to develop uremia, for the condition

that causes deficient urea elimination also causes retention of other poisons which help to form uremia. It might be added that even small quantities of quinine decrease urea elimination.

Uric Acid *Uric acid* normally is excreted about a gram, or slightly less, daily. It is one of the end-products of protein decomposition. Those conditions which cause an increase in urea cause an increase in uric acid. Other conditions that cause it are most general infections and especially leukemia. In gout there is an increase during an attack, but a decrease before and after the attack. Uric acid is decreased in anemia, diabetes insipidus, advanced kidney disease, lead-poisoning, rickets and scurvy and from the use of quinine.

Albumin in the urine may be of different kinds. Serum albumin, the most important, is the kind meant when the term albumin is used without qualification. With it may be associated such other proteids as serum-globulin, albumose, nucleo-albumin and fibrin. There may be a physiological albuminuria in which albumin appears transiently in the urine and in which there is no apparent change in the kidney cells. This is why one urinalysis in which albumin appears in the urine cannot be considered positive indication that there is a kidney disease or kidney weakness. Ordinarily, however, the presence of albumin in the urine indicates a structural or functional change in the kidney. Mild temporary changes in the kidney cells may cause a transient albuminuria. Bare traces of albumin in the urine are not now considered as grave indications, even though appearing frequently. It is the more or less constant presence of albumin that leads one to presume the existence of organic kidney disease.

Accidental albuminuria is that due to contamination of the urine from various substances, as blood, pus, semen, urethral-cells or bladder-cells, etc.

Functional albuminuria is due to severe exercise, after a heavy meal or a cold bath, or intermittently in people of good health with no other evidence of kidney disease. Sometimes in pregnancy and adolescence there is functional albuminuria, though in these cases there may be considered to be a susceptibility to kidney disease, probably to develop only after several years and under special stress.

After eating an excess of albuminous foods there may be an alimentary albuminuria. Certain toxic substances may produce a toxic albuminuria—those from some pathological process, anesthetics, inhaled turpentine fumes, swallowed poisons such as lead, cantharides (or Spanish fly), carbolic acid, etc., or poisons entering the body through the skin or from rectal or vaginal injections or hypodermically. In many fevers there is a febrile albuminuria, which may be transient or become chronic.

A passive congestive albuminuria results from heart disease or other conditions interfering with circulation in the renal veins. The albumin may come from one or both kidneys, depending upon the nature and location of the interference. A neurotic albuminuria often is present in nervous diseases, the albumin appearing in traces and without organic disease of the kidneys, as in epilepsy, migraine, apoplexy and exophthalmic goiter.

Postural albuminuria is functional, but may become organic in time. In some cases there appears albumin in the upright posture, disappearing when reclining—as after heavy exercise or heavy meals and after excitement. In some other cases, especially in enlarged spleen or other conditions producing pressure on the renal veins, there is albumin in the urine while reclining, but it disappears when one is in the upright posture.

Organic disease of the kidney does not always give an albuminuria. In even advanced cases of interstitial nephritis (contracted kidney) no albumin may appear most of the time and only slight traces at the other examinations. In acute nephritis there is a large amount of albumin, part of which comes from the blood that is discharged with the urine. In chronic parenchymatous nephritis (large kidney) there may be a high percentage of albumin. In pyelitis (inflammation of the kidney pelvis) and abscess in or around the kidney there may be albuminuria.

Albumin and
Kidney
Disease

Blood in the urine may be from one or more of various locations and causes which cannot be considered here. Various inflammatory processes are the usual causes. The blood may appear as a few scattered cells, as a general red color, or as clots.

Glycosuria is urine containing sugar (glucose). It appears in any condition in which there is an appreciable increase in the blood-sugar over the normal one part in a thousand parts of blood. There is a transient glycosuria from an excessive intake of starch and sugar, after acute fevers in obese people and in some nervous diseases. When the oxygen supply is much lowered, as in suffocation and ether and chloroform anesthesia, there is a glycosuria. When sugar appears in the urine constantly and over long periods, however, it indicates diabetes mellitus (sugar diabetes). But in numerous other conditions it may be found transiently, as in boils, alcoholism, cancer of the pancreas, concussion of the brain, exophthalmic goiter, whooping-cough, melancholia, neurasthenia, phosphorus-poisoning, and starvation.

Acetone normally is found in traces in the urine. When increased over this it may indicate malnutrition or chronic digestive disease, though it may be after chloroform anesthesia or in many fevers, also in cancer, gastric ulcer, malnutrition, nephritis, uremia, etc. If the carbohydrates in the diet are materially reduced below body requirements acetone may be greatly increased. In diabetes this is a danger sign, as it may indicate impending diabetic coma, especially if it continues to appear in the urine when treatment that should benefit the diabetic condition is given. This is a condition known as acetone acidosis. Sometimes, but not often, it develops in fasting obese patients.

Diacetic acid usually is associated with acetone in diabetic urine and makes the prognosis of diabetes more grave. If it is present in large amounts a fatal acidosis is imminent. If oxybutyric acid is found in addition to acetone and diacetic acid the prognosis is still more grave regarding the acidosis. Diacetic acid also is found in moderate degree in fasting, fevers, exclusive meat diet and morphinism.

A *microscopic examination* of urinary sediment is necessary to complete a urinalysis. Alkaline urine should be examined at once if possible, because of its tendency to rapid changes. The significance of urinary deposits will be considered briefly.

Blood has been mentioned above. Leucocytes, or white blood-cells, are normally found in small numbers. Pus-cells

may indicate one of many abnormal conditions: Abscess (in various locations), stone in the kidney, bladder or urethra, cancer of the urinary tract, cystitis (with urine usually alkaline), gleet, gonorrhea, leucorrhea, pyelitis, urethral stricture, suppurative nephritis, tuberculosis of bladder or kidney (urine acid), ulcer of the bladder, inflammation of ureter or urethra. The pus usually comes from the kidney when the urine is acid. Rupture of an abscess into the urinary tract, or unkinking of a ureter that has held back the pus, may cause the sudden appearance of a large amount of pus in the urine.

Growth particles may be due to cancer of the urinary tract. An excess of epithelium may come from an acute nephritis, a cystitis, a kidney-stone, urethritis, or pyelitis, or may result from scarlet fever. Spermatozoa may be normal after coitus, or may be due to masturbation, withdrawal, loaded rectum or spermatorrhea.

Numerous bacteria may be found. Any present indicate an abnormal condition unless the urine has been contaminated before examination (after passage). There may be found one or more of several types, their significance being left to the physician to determine. The same with parasites. Small stones and gravel may pass in the urine, from the kidneys, the bladder or the urethra.

Numerous *casts* occur in abnormal urine, though, as a rule, a few isolated casts may be ignored. Sometimes they are absent when their presence is suspected, perhaps as a result of decomposition by bacterial action. Kidney diseases are diagnosed positively by means of the urine by the finding and the types of casts, which are moulds from the kidney tubules. A transudate from the cells of these kidney tubules that undergoes coagulation, or a secretion that undergoes semi-hardening, forms the cast. There may be mixed with the casts or attached to them various substances, which may give rise to the name or type of the cast: tubular cells, pus-cells, red blood-cells, bacteria, granular matter or fat. The fatty, granular and epithelial casts have more significance than the others.

Urinary
Casts

After trivial disturbances and after strenuous exercise and slight fevers, hyaline (glassy) or fibrinous casts are normally present in small numbers. Preceding an attack of diabetic

coma they may appear in great numbers, though they may be numerous also in either acute or chronic nephritis. They are the most common casts found, yet are of least significance.

Granular casts receive their name from the attachment to plain hyaline casts of granular material from disintegrated kidney cells, blood-cells and other substances. They are present in late chronic nephritis. The coarser and darker they are the greater their significance.

**Types of
Urinary
Casts**

Epithelial casts are hyaline casts with adhering cells that have been shed from the tubules, though sometimes these cells form hollow casts of themselves (true epithelial casts). They are present in passive congestion, in jaundice, as the result of irritants, and especially in acute nephritis.

Fatty casts appear in pronounced degenerative changes in the epithelial cells of the kidney tubules, as in fatty degeneration of the kidney and in chronic parenchymatous nephritis.

Blood casts appear when there has been some process, usually acute, which causes hemorrhage in the kidney, as in cancer, acute congestion, embolism or cystic disease of the kidney, kidney stone and acute nephritis. In case of hematuria (blood in the urine), blood casts establish the kidneys as the source of the blood.

Pus casts are not often seen, but may be found in abscess of the kidney and pyelonephritis.

Amyloid or waxy casts, which may be of considerable size, are present in urine from kidneys chronically inflamed (chronic nephritis).

Cylindroids are thinner and often flatter than casts. Their main substance is mucus. They have no great significance, at most indicating irritation of the kidneys.

The Sputum

The Sputum. The examination of the sputum is not routine by any physician or hospital or sanitarium except those concerned with treating tuberculous patients and those treating acute cases involving the lungs and bronchial tubes. The chief microscopical examination is for the tubercle bacillus. The absence of tubercle bacilli from the sputum does not prove the absence of tuberculous involvement of the lung, for these bacilli rarely appear until the condition has become fairly well advanced—until the stage of softening has been reached. The

test for these bacilli is definitely not for the layman, as it requires chemicals and heat for staining and the microscope for studying the stained specimen.

Certain other conditions of the sputum may be mentioned. Scanty sputum appears in the first stage of spasmodic asthma, at the onset of acute bronchitis, in dry catarrh, first stage of diphtheritic laryngitis, hay-fever, chronic laryngitis, and the onset of acute pleurisy. Frothy sputum is characteristically present in cases of acute bronchitis, but also in emphysema, edema of the lungs, acute lobular pneumonia. Watery and abundant frothy sputum appears in bronchorrhea, and in gangrene of the lungs the upper layers are frothy. The sputum is viscid or sticky in acute pneumonia especially, but also in bronchopneumonia, whooping cough and in millers and bakers (from inhaling flour). A mucopurulent sputum is found particularly in chronic bronchitis, but also after the end of a severe attack of asthma, in the third stage of whooping cough and tuberculosis and in acute pneumonia after the crisis.

Forms of
Sputum

Nummular or coin-shaped sputum comes usually from a tuberculous cavity in the lung, but also from bronchorrhea, bronchiectasis, and cirrhosis (fibrosis) of the lung. A purulent sputum usually indicates an old chronic bronchitis, but may indicate an acute bronchitis, bronchopneumonia, enlarged bronchial glands, or the bursting of an abscess into a bronchial tube. Blood-streaked sputum appears especially in chronic pharyngitis or plastic bronchitis (from violent coughing), cancer of the lung, or enlarged veins in the pharynx (pharyngeal varix), but also from other inflammations and from growths in the throat or the bronchi and from pyorrhea or bleeding gums. Light streaks of blood often have no pronounced significance.

Rusty sputum appears most often in acute pneumonia, prune-juice sputum usually from cancer of the lung. Casts appear in the sputum in diphtheria and plastic bronchitis. Black specks in the sputum are due to coal-dust, smoke, dust, etc. Fetid sputum may be due to gangrene of the lung, large cavity in pulmonary tuberculosis, actinomycosis, bronchiectasis, abscess, or syphilitic laryngitis. The microscopic examination of the sputum cannot be taken up here.

**Basal
Metabolism
Measure-
ment**

Basal Metabolism is the rate of metabolism when the body is at complete rest and when, after a 12-hour fast, digestion is at its normal daily minimum. Normally there is a constant relation between the basal metabolism and the surface area, being represented by the total hourly heat production to the square meter (approximately a square yard) of body surface. It may be determined directly by measuring the actual heat given off by the individual in a stated time, or indirectly by measuring at the same time the amount of oxygen used and the carbon dioxide given off, the surface area being determined by the subject's height and weight.

The figure obtained, in proportion to the body surface, is fairly constant for normal people of the same age and sex, but varies in some measure in disease. For instance, hyperthyroidism, fever diseases and leukemia exhibit high rates, while hypothyroidism, inanition, asthenia, and deficiencies of glandular activity have a low rate, which is present also during rest in bed.

Thus the basal metabolism rate differentiates diseases into three distinct groups: those with normal basal metabolic rates (normal heat production); those with increased rates; and those with decreased rates. There is a small variation normally, but not sufficient to disturb these three groups, for the increased and the decreased rates are respectively much above and below the normal range of variance.

Calories are used in expressing the metabolic rate; either the total in 24 hours or the number each hour to the square meter of surface area. However, in practice only the oxygen intake need be measured.

The metabolic rate is modified by various factors: It is greater in males than in females and greater in early life than later life; various foods modify the rate; muscular activity makes the test valueless; certain stimulating psychic reactions alter the rate; increase in temperature above normal increases the metabolic rate 7.2 per cent. for each degree Fahrenheit of temperature above normal. Various diseases increase, while others decrease the rate. Children, as shown by basal metabolism determinations, require a larger proportion of food than do adults, the basal requirement in boys being 25 per cent. above that of adults of equal size. Before puberty the require-

ment is especially high, but on the approach of full development it becomes progressively lower. The same conditions pertain to girls, also, except that before and during the age of puberty there is not so pronounced an increase as there is in boys at the same period.

The figures in basal metabolism vary widely according to the rate of internal combustion and this latter is influenced by many internal and external causes.

Various forms of apparatus have been devised and employed for determining the basal metabolism. Some simple devices have been produced that answer the purpose admirably. The oxygen consumption of the patient may be studied in ten- or fifteen-minute periods. It usually is more desirable to take three series of comparison tests on at least two different subjects having widely varying basal oxygen requirements. Research laboratories use expensive direct calorimetry apparatus; but in practice simple indirect calorimetry apparatus is used. As new apparatus is constantly being devised, those now used will have become antiquated within a small number of years.

Apparatus
for Basal
Metabolism
Determina-
tion



PHOTOGRAPH UNDERWOOD & UNDERWOOD

Equipment for basal metabolism test is here shown. The amount of oxygen utilized by the lungs is recorded. The amount of carbon dioxide exhaled by the subject is recorded simultaneously to show the completely inactive body's consumption of fuel derived from food, in addition to its consumption of oxygen. This record serves as a base for estimates of food requirements when the body is engaged in various forms of work and exercise.

The technique of determining the basal metabolic rate need not be considered here. While this determination is of much value in many abnormal conditions of the body, it should not be considered as of greater value than the patient's history and symptoms and the findings under a careful physical examination.

Standards
of Metab-
olism

These basal metabolism tests are valuable chiefly because of their aid in the recognition of diseases in which the metabolic rates are increased or decreased and in the differential diagnosis between abnormal conditions having similar manifestations yet regularly having different metabolic rates; also as a guide in treatment, and to determine the effectiveness of the treatment. Especially in the following conditions the tests are of value:

Enlarged thyroid gland with symptoms of hyperthyroidism; enlarged thyroid where symptoms resembling those of hyperthyroidism are due to other causes; enlarged thyroid with no symptoms; symptoms of hyperthyroidism with no enlargement of the thyroid; enlargement of the thyroid from tumors; enlarged thyroid with symptoms of hypothyroidism; symptoms of hypothyroidism with no change in the size of the thyroid.

In the case of goiter with disturbed health the tests will help determine whether the health impairment is due to the goiter or to other causes. Among conditions of disturbed thyroid activity in which the tests are of value may be mentioned nervous heart afflictions, nervousness, weakness, defective circulation, loss of weight and inability to gain weight, incipient tuberculosis and gastrointestinal disorders.

Usually in determining the basal metabolic rate comparison of the findings in a given case is made with tests already made on normal persons of both sexes and various ages. The rate of an individual subject is expressed in terms of percentage of the normal: a 25 per cent. increase being termed a basal metabolic rate of +25, and a 25 per cent. decrease being termed a basal metabolic rate of -25. There being a range in normal individuals of 15 per cent. above and below normal, only values above +15 or below -15 are considered abnormal.

Numerous conditions have been listed in which basal

metabolic rate determination is of diagnostic value. According to one medical work, the value "is greatest in the group of cases with one or more of the symptoms caused by hyperthyroidism. Cardiac disturbances, as tachycardia, cardiac myasthenia (muscular weakness of the heart), and palpitation; fine tremors, general debility, loss of weight, anemia, attacks of vomiting and diarrhea, psychic disturbance, as depressions and irritability, psychasthenia and sweats are symptoms in respect of which the exclusion of thyroid disturbance or its acceptance as cause can be made by a determination of basal metabolism." The test was further considered useful "in the differential diagnosis of hysteria, neurasthenia, tuberculosis (incipient), and neuroses simulating thyroid disease, and necessary in the diagnosis of effort syndrome."

**Basal
Metabolism
Tests**

But in spite of all good favorable opinions that have been expressed as to the value of basal metabolic determinations, "the most important thing is still a careful history and physical examination; the basal metabolism comes next, but should not be considered pathognomonic (definitely indicative of a certain disease)." The test fails to give the desired information in certain individual cases, and various factors govern it to such an extent that it must always be checked with symptoms and findings upon examination.

INTERPRETING DISEASE SYMPTOMS

Section 2

Types of Disease

DISEASES are classified in various ways. In *organic* diseases the structure of an affected organ of the body is altered. In *functional* disease there is no visible change in structure, but failure of organs or parts of the body to perform their functions. When a *communicable* disease occurs in a certain locality more or less constantly it is said to be *endemic*. When it affects a very large part of a community it is said to be *epidemic*; when an epidemic spreads over a large stretch of a continent or of the world it is called a *pandemic*. Detached cases of a communicable disease in a given locality are spoken of as *sporadic*.

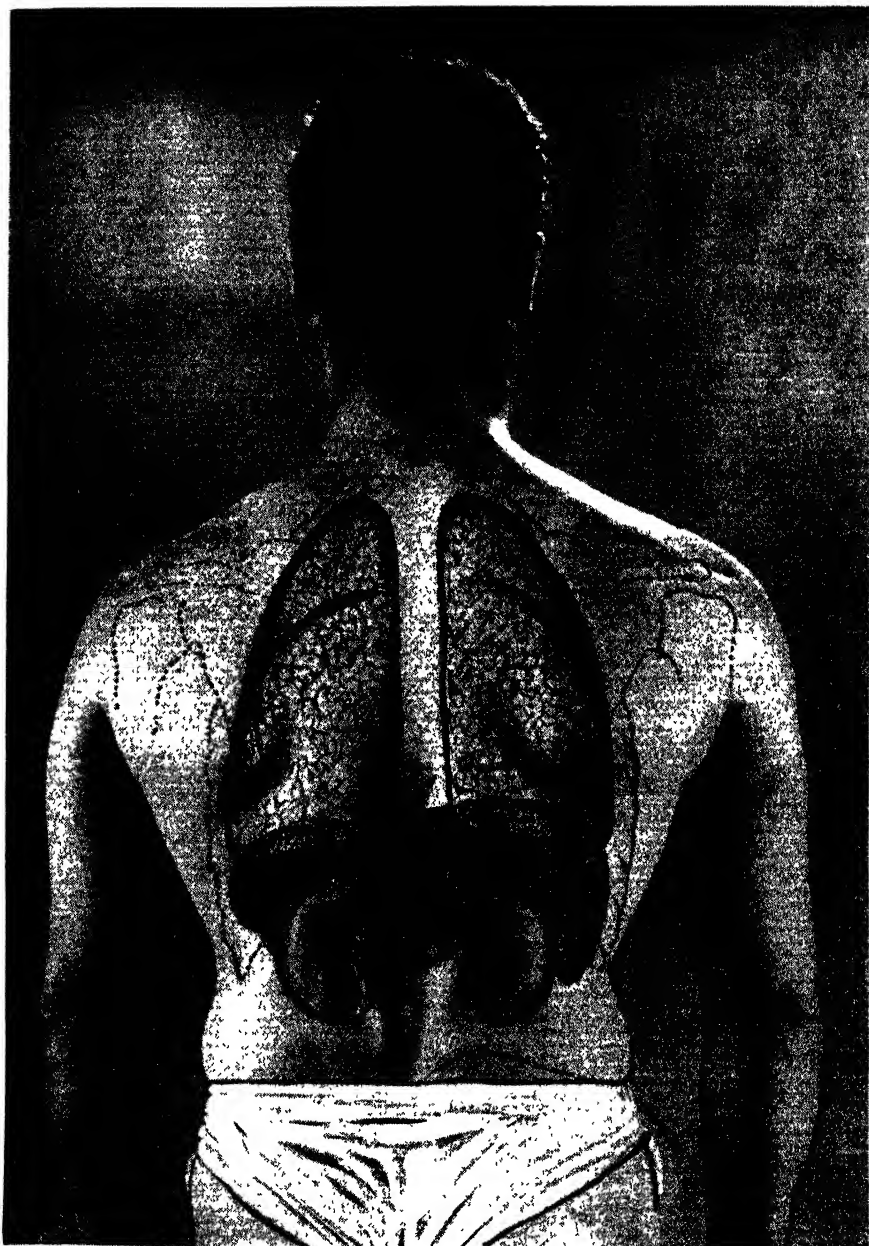
An *acute* disease is sudden and rapid in its development; when slow or gradual, the disease is said to be *chronic*.

Curative methods of treating disease may be hygienic, dietetic or manipulative, or combinations of these. Preventive methods usually are hygienic and dietetic, but sometimes other methods also are applied.

Pathology is the study of disease. *Etiology* considers the causes of disease, which may be internal or external, specific, primary, or secondary, predisposing and exciting. *Symptomatology* is the study of the various symptoms and signs whereby the disease is detected and diagnosed; these may be objective or subjective. *Objective* symptoms are those evident to the observer or examiner, while *subjective* symptoms are those that are apparent only to the patient himself. *Diagnosis* is determination of the nature of disease, while *prognosis* is the forecast of the outcome of a disease.

Health Defined

Health is bodily ease. "Ease" implies freedom from physical disturbances and a normal, natural condition of all parts. In health every function is performed easily, without interference or hindrance from any cause whatever. Disease implies unnatural conditions, with restriction of or interference with functions. To be continuously ailing is no longer



Back view of some of the organs of the trunk cavities. As shown, the lungs occupy the larger part of the upper or thoracic region, being separated from the organs of the abdomen by the diaphragm. The liver appears in moderately heavy shading under the lungs and the spleen in darker shading. The organs resembling lima beans, as seen in profile, are the kidneys.

considered a credit to one's intelligence. Pain and illness, discomfort and depression are evidences of derangement of the body. Irregularity of functional action must be traced to its source and corrected. "A stitch in time saves nine" is an old saying that applies here. Learn to recognize diseases in their early stages, through the instructions offered in these pages, nip them in the bud, and you will have little to fear. When we understand the body and its needs, each of us may be practically absolute master of his own health and happiness.

"A cool head, warm feet and open bowels" is a simple but fairly good observance to preserve health, and to regain it when lost.

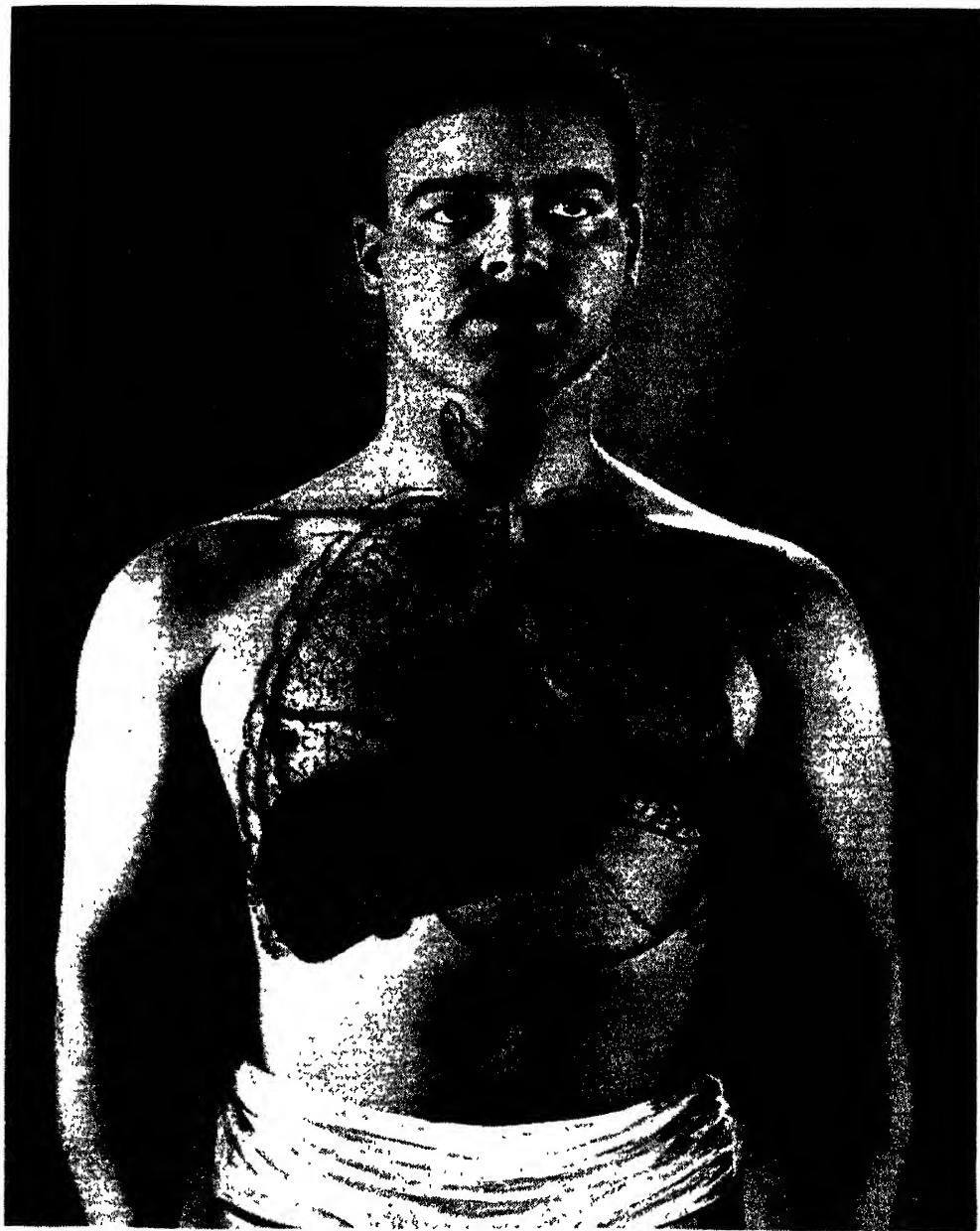
Of all the various functions of the human body the circulation of the blood is perhaps the most vital. Coldness of the surface always indicates recession of the blood to internal organs; so the greater the surface affected and the degree of coldness, the more serious the condition thus manifested is likely to be. A hot head and cold hands indicate brain congestion. A hot abdomen and cold feet indicate intestinal congestion. Heat over the chest or upper portion of the back coincident with cold extremities denotes lung trouble. A cold nose often signifies intestinal torpidity. One cheek hot and the other cool shows nervous fever, or sometimes pneumonia. Both cheeks flushed may show hectic fever. As our health depends upon the equalization and purity of the blood stream, the first step toward relief is the equalization of the circulation and the free functioning of the secretions and excretions.

Importance of
Good Blood
Circulation

In every case of disturbance of health the predisposing causes must be considered, for if the blood is pure and the organism has sufficient vitality no disease is likely to develop. A sore throat will arise only when there is a lack of resistance, or when there are accumulated wastes. Such a condition as cold, wet feet may be regarded as the immediate cause, though the primary causes are of the kind enumerated in detail under *Colds*. (Sec. 7.)

The temporary chilling of a healthy body or any part of it will have little harmful effect, though prolonged interference with the circulation will be likely to cause trouble.

DO NOT TREAT SYMPTOMS ONLY.—In treating disease one should not treat only the symptoms, such as fever, chills, in-



From behind the thyroid gland, as shown in the throat of subject, the trachea descends and divides to form the right and left bronchial tubes, which in turn enter the right and left lung. The liver is shown in darker shading, partly beneath the left lung and the heart. The stomach (appearing in the lighter shading of illustration) is partly behind the liver and under the lower lobe of the left lung. The diaphragm separates the heart and lungs from the digestive organs of the abdomen.

Symptoms
Suggest
Causes

flammation, spasms, etc. These are simply the inevitable consequences of the inability of the vital force to control the affected tissues in a natural or healthy manner. These symptoms should aid us in locating the tissues or structures altered in character through influences at variance with their normal condition. For instance, a "cold" is an eliminating process, an attempt upon the part of Nature to get rid of poisons and impurities.

At any time in the course of an illness several complications may arise, such as hemorrhage, convulsions, and coma. All such complications call for immediate and expert action. In such cases a trained nurse is of incalculable value. However, if for any reasons such a nurse is not available the person who assumes the responsibility of attending the sick should try to prepare for all these emergencies by reading up beforehand everything relating to the particular disease and possible complications, as given in this volume.

In the course of a serious illness the patient usually becomes more or less helpless. Hence the need of an attendant whose duty it becomes to look after all his bodily comforts and to watch his condition carefully and critically. The principles of nursing have been sufficiently covered in Volume VII (Sec. 3.) to acquaint anyone with the essentials.

It is well for the nurse or the attendant to familiarize herself with a sick-room chart. This is easy to keep and is a great convenience in following the course of the disease, as it will show the temperature, pulse-rate, respiration rate, bowel movements, kidney actions, treatment instituted, amount of food and water taken, amount of sleep the patient has had and any other important matters necessary to record for the information of the physician.

Aside from this, the attendant must be constantly on the lookout for danger signals of failing vitality. As such a condition develops the temperature usually drops rapidly to normal or below normal without any apparent improvement in the general condition, and the patient's heart and respiration begin to fail. The pulse becomes rapid, barely palpable (thready), the face assumes an anxious look, the lips, nose, hands and feet become bluish (cyanotic), cold and clammy, respiration becomes labored and rapid (over 35 a minute),

Danger
Signals

a rattling sound in the throat is heard with each breath, and, if able to expectorate, the patient brings up a pink or red, foamy, sticky fluid. Energetic steps must be taken if the patient in such a condition is to be saved.

First, he should be propped up in bed in a sitting or partial sitting position and hot packs applied to his extremities or to the entire body and the treatment described in this volume for heart-failure immediately instituted.

Here we wish to put stress on the statement that no person can be an efficient nurse who does not take particular care of herself. To be cheerful, to be able to do a patient full justice, she must take care of her own health first. She, therefore, must commit no dietetic errors, must have sufficient sleep and outdoor exercise, and finally, in case of a communicable disease, must avoid all unnecessary exposures to infection on the part of herself or others.

In case the patient being nursed has a communicable disease, care must be taken to avoid carrying any infection from the sick-room. As an attendant must leave the sick-room from time to time it is advisable for her to wear a boudoir cap or a dust-cap, and a light wrap over her dress while in the sick-room, removing them when leaving the room. At the doorway of the room a sheet should be hung on the outside and kept sprinkled with some efficient disinfectant. This sheet covers the entrance into the sick room when the door is opened.

**Disinfectant
Precautions**

In communicable diseases it is essential that those attending the patient maintain their own health at the highest possible standard, that they under no circumstances neglect thoroughly to wash their hands or other parts of the body which may come in contact with the patient, and also that they keep each eliminative outlet of the body free to perform its functions. That physicians and nurses themselves become so rarely infected while handling those who are affected by communicable diseases is in a large measure due to the resisting powers with which their own physical condition provides them and also to the sanitary precautions they observe.

DIAGNOSIS.—It is impossible to over-emphasize how important a matter it is to diagnose a case correctly. Often the cause of a disorder is much more deeply rooted than perhaps appears at first glance, as, for instance, in some cases of diges-

**Importance
of Diagnosis**



Pains in centers indicated are caused by:

- A. Anemia, chlorosis, constipation, epilepsy, hysteria, neurasthenia, disease of uterus, disease of prostate.
- B. Neurasthenia, eyestrain, poisoning by alcohol, opium or other drug.
- C. Migraine, eyestrain, constipation, ear disease.
- D. Diseases of uterus and ovaries.
- E. Trigeminal neuralgia (paroxysmal).
- F. Mastoiditis (back of ear), ear disease, foreign body in ear, inflammation of the tooth pulp, teething, mumps, neuralgia.
- G. Adenoids, eyestrain, constipation, neurasthenia, syphilis, neuralgia, drug or poisoning.
- H. Alveolar abscess, toothache, neuralgia, cancer of jaw, disease of antrum, or salivary stone.
- I. Alveolar abscess, abscess of tooth pulp, neuralgia, mumps, stoppage of salivary glands, salivary stone, actinomycosis.
- J. Tonsillitis, laryngitis, abscess, sore throat from overuse, diphtheria, scarlet fever, etc.
- K. Tuberculous glands, rheumatism, wryneck, muscular strain.
- L. Muscular strain, aneurysm, tuberculosis of apex of lung, spinal bone disease.

tive disorder. If not due to deficient food intake, a poorly nourished, emaciated body is positive evidence of insufficient assimilation, the food simply passing through the digestive tract with little or nothing absorbed. Absorption itself may be at fault, or digestion may be so defective that the food is not prepared for absorption. Perhaps the functions are affected through mental or physical strain, worry or various other causes; but naturally, digestive disorders in most cases have their origin in errors of diet and other deleterious habits.

HOW TO DETECT DISEASE.—In ascertaining the nature of the disease with which one may be confronted, one should note the appearance of the patient and the external and internal conditions of the body as outlined in the pages which follow.

After noting the constitution, sex and age, take the temperature, pulse and breathing, note the condition of the mouth, tongue and skin, the urine, the fecal discharges, the condition of the nervous system, the state of the mind, and so on. For taking the temperature and counting the pulse and respiration see *Nursing*. (Vol. VII, Sec. 3.)

Disease
Detection

FACIAL SIGNS.—Sunken cheeks covered with sallow, flabby tissue signify deficient digestive and assimilative power, perhaps some wasting disease. Pale, compressed, thin lips often indicate sexual and other deficiencies. Narrow nostrils mean improper breathing and deficient lung power; if collapsed, adenoids or nasal obstruction. Coldness of the tip of the nose shows intestinal torpidity; redness of the tip of the nose, intestinal catarrh, dyspepsia, or menstrual difficulty, usually amenorrhea. A yellow, sallow face often denotes liver derangement or anemia, but also numerous other abnormal conditions.

A waxy complexion is common among sufferers from Bright's disease and usually is associated with a puffiness, especially under the eyelids. Paleness shows internal congestion or a deficiency in the amount of the red blood corpuscles (anemia). In women, paleness often is a symptom of menstrual irregularities. Advanced cancer also gives a peculiar pallor with a yellowish cast to the skin. Redness of face, especially if dark red, may be due to overeating, or to apoplectic or gouty tendencies. Red spots upon pale cheeks suggest tuberculous difficulties, though in some cases worms



Pains in centers indicated are caused by:

- A. Anemia, chlorosis, constipation, epilepsy, hysteria, neurasthenia, uterine disease, disease of prostate.
- B. Anemia, brain exhaustion, eyestrain, neurasthenia, constipation, alcoholism.
- C. Nasal catarrh.
- D. Sinusitis, coryza, eye-inflammation, stomach disease.
- E. Migraine, eyestrain, neurasthenia, neuralgia, caries of teeth.
- F. Eyestrain, coryza, trifacial neuralgia.
- G. Eyestrain, diseases of eye (especially iritis), glaucoma, conjunctivitis, corneal disease, coryza, foreign bodies in eye and injuries in and about eye.

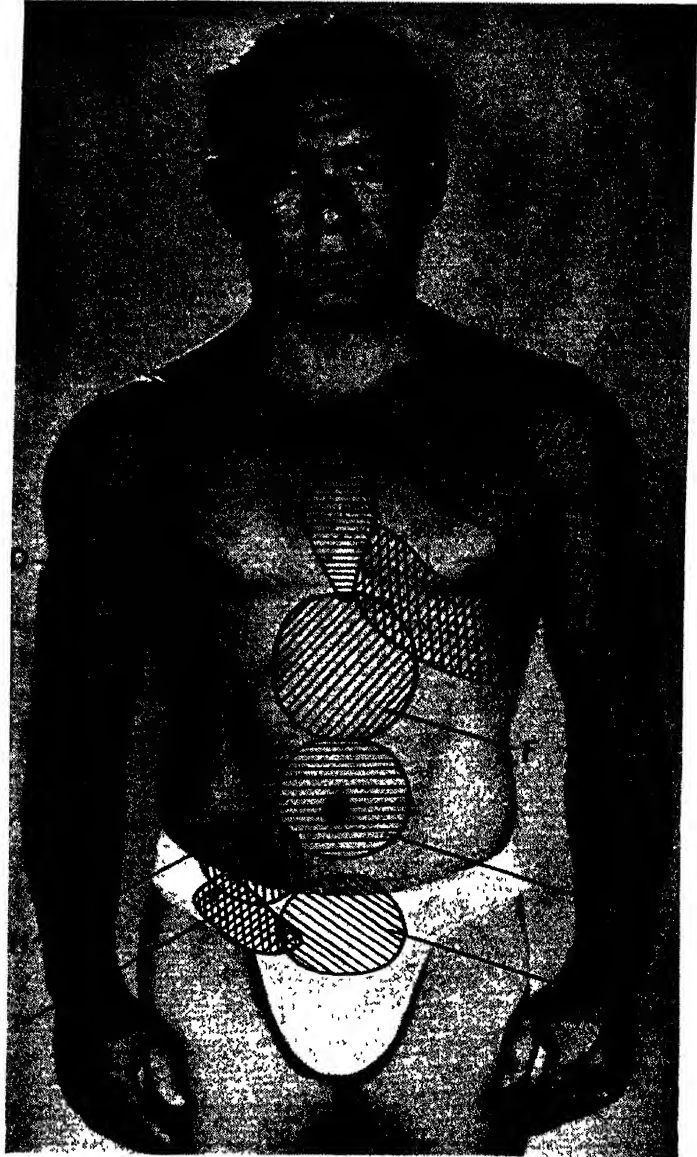
occasion them. Local redness takes place when there is inflammation.

The Telltale Tongue

THE TONGUE.—A dry tongue denotes intestinal irritation or nasal obstruction; a furred tongue occurs in nearly all fevers, in jaundice and nasal obstruction. Yellow, white or brown fur without fever points to indigestion or constipation, accompanied by liver trouble. A trembling tongue denotes

Pains in indicated centers are due to:

- A. Neuralgia, rheumatism, muscle strain, angina pectoris, neuritis of shoulder, inflammation of shoulder joint, occupational neurosis.
- B. Pleurisy, angina pectoris, tuberculosis, neuralgia, pneumonia.
- C. Caustic poisoning, aortic aneurysm, mediastinal disease, disease of breast - bone, bronchitis, heart spasm, coronary arterial spasm, heartburn, indigestion.
- D. Pleurisy, pneumonia, fracture of ribs, chest injury, tumor of chest, neuralgia, shingles, gallstones, gall-bladder inflammation, liver disease.
- E. Pleurisy, pneumonia, neuralgia, pericarditis, stomach gaseous distension, pancreas and colon inflammation.
- F. Gallstones, heartburn, constipation, gastric ulcer, flatulence, duodenal ulcer, endocarditis, disease of pancreas, angina and pseudoangina pectoris, chronic gastritis, strained or bruised abdominal muscles.
- G. Peritonitis, enteritis, diarrhea, dysentery, typhoid fever, intestinal worms, lead-poisoning, intestinal tuberculosis, fecal impaction, neuralgia, influenza (intestinal), floating kidney.
- H. Appendicitis, loaded sigmoid (on left side), loaded cecum (on right side), some forms of neurasthenia.
- I. Hernia, renal colic, bubo, constipation, disease of testicles, disease of prostate, ovary or Fallopian tube, dysmenorrhea, displaced ovary, rider's strain, sexual congestion.
- J. Bladder diseases, dysmenorrhea, inflammation of womb, falling of womb, pelvic abscess, pelvic peritonitis, excessive venery, disease of prostate.



nervous debility or a disease of the nervous system. Blueness indicates interference with respiration and circulation; and deep redness, intestinal irritation. A beefy tongue occurs in chronic inflammation of the bowels or the liver, and in diabetes.

GUMS.—A blue line at the junction of gums and the teeth indicates chronic lead-poisoning. Spongy and bleeding gums generally occur in stomatitis (inflammation of the mouth) and pyorrhea, and in several other conditions. It should not be forgotten that broken teeth and poorly-fitting dentures also may be responsible. Pyorrhea causes recession of the gums, often with bleeding and pus. Pale gums indicate anemia.

PAIN is Nature's danger signal. Its presence signifies a functional or organic disturbance of some organ or part of the body. The duty of the health-seeker, therefore, is to familiarize himself with the varieties of pain in order that the disease responsible for this physical distress may be detected and its course stayed before it increases in intensity and assumes a dangerous aspect.

Pain as
Danger
Signal

Pain may be *functional* or *organic*. For instance, the pain of aching, tired muscles is functional; the pain of pleurisy and gastric ulcer is organic.

In pains due to inflammation the patient avoids touching the painful part, or approaches it cautiously.

In deep-seated pain the gestures are indicative of its distribution and the tissues involved. In pains extending over a large area the whole hand is laid over the part. Stabbing pains often are indicated by finger tips pressed into the tissues.

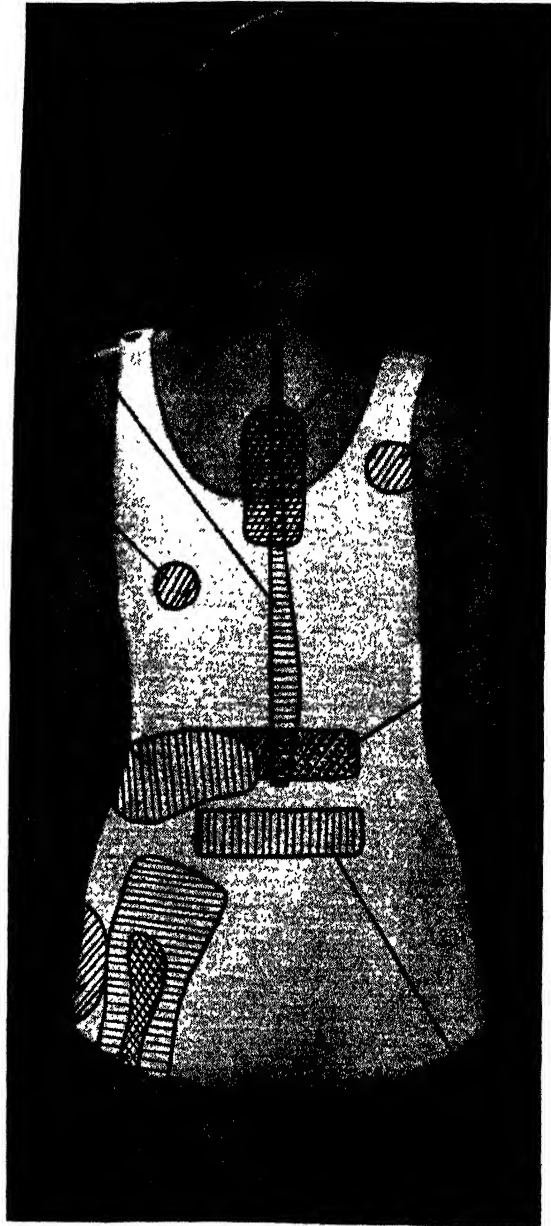
Areas of
Pain

Severe pain, especially when paroxysmal, frequently is accompanied by dilation of the pupils, rapid respiration, flushing or pallor, free sweating, increased arterial tension, and sensations of faintness.

Inarticulate sounds and involuntary exclamations are familiar objective manifestations of sudden and intense pain. The pain sense is not developed alike in all: in some individuals it is present to an abnormal degree, in others it is more or less blunted. The susceptibility differs according to temperament and the race. Latin races manifest greater susceptibility to pain than do the Anglo-Saxons; Oriental apathy is proverbial. Pain may be acute (sharp), dull, throbbing, burning or gnawing, itching, bearing-down or gripping (tenesmic).

Pains in centers indicated
are caused by:

- A. Rheumatism, neurasthenia, neuralgia, constipation, errors of refraction, cerebrospinal meningitis, tumors of cerebellum, diseases of liver and gall-bladder.
- B. Disease of spinal cord, spinal curvature, neurasthenia, diseases of vertebrae, tensions and contractions, hysteria, railroad spine.
- C. Diseases of stomach, flatulence, rheumatism, aneurysm of aorta, sexual exhaustion, tumor of mediastinum.
- D. Liver and gall-bladder disease.
- E. Disease of spleen.
- F. Renal colic, neuralgia, muscular cramp, kidney abscess, disease of spleen.
- G. Lumbago, muscular fatigue, constipation, influenza, smallpox, stone in kidney, disease of colon.
- H. Uterine disease or displacement, neuralgia, endometritis, inflammation of Fallopian tubes, inflammation of prostate, excessive venery.
- I. Neuralgia, cramp, hip-joint disease, ovarian disease.
- J. Constipation, sciatica, disease of prostate, disease of rectum, locomotor ataxia.
- K. Pelvic disease, excessive venery, congestion of pelvic organs.



Pain is modified by physical agencies, such as pressure, mechanical irritation, movement and rest; and also by mental influences, such as intense emotion, excitement, and other causes.

Pain may be occasional, constant, persistent, intermittent, recurrent or paroxysmal. It may be of a general or a local nature. In neurasthenia and hysteria there usually exists a morbid craving for sympathy, so pain may be feigned and simulated. Anatomically pain may be: tegumentary (in the skin), muscular, osseous, visceral, or neural (due to disease of nerves). See also *Abdominal Pain* and *Pain*, in Section 7.

THE EYES.—The belief that one can diagnose diseases of the body from an observation of the eyes alone is wide-spread. While in a majority of cases this is impossible, yet a careful observation of the eyes and the eyelids may be helpful.

Thus paleness of the conjunctiva of the eyelid should make us suspect anemia; bloodshot eyes suggest excessive heart action or cerebral congestion (acute alcoholism) or local irritation or inflammation; while a yellow conjunctiva is common in liver diseases, especially in jaundice. An acute inflammation of the conjunctiva is often the first symptom of measles or whooping cough and is present in simple conjunctivitis, pinkeye, iritis, hay-fever, and when a foreign body is in the eye. A frequently recurring conjunctivitis, especially when it affects one eye only, is very characteristic of scrofula. Inflammation and ulceration of the cornea (keratitis) is frequently an expression of a rheumatic, tuberculous, diabetic or malnourished condition, or of a gonorrheal or congenital syphilitic infection, or of meningitis. A contracted pupil is seen in brain anemia, first stage of brain compression, third stage of brain concussion, apoplexy, sunstroke, uremia, from aconite and opium, and in morphine and alcohol addicts, although in acute alcoholism the pupils are dilated.

A pupil which does not react to light (is fixed) is seen in locomotor ataxia, general paralysis of the insane and temporarily in acute infections. Cataract, especially when the individual is young, should always arouse suspicion of diabetes. Marked disturbances of vision are common in hysteria, diabetes, Bright's disease, locomotor ataxia, arterial sclerosis and



PHOTOGRAPH WIDE WORLD

PLATE 91. The foundation of physical resistance to disease is best developed in early days of childhood. This photograph shows an outdoor kindergarten class in Germany.

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in some blood diseases. Intolerance of light (photophobia) is present especially in conjunctivitis, iritis, measles, migraine and retinitis.

SKIN.—A dry, scaly condition of the skin is indicative of costiveness and dryness of the intestinal canal. It is found also in certain nervous affections, in diabetes, gout, enteric fever, in many old persons, and in those who have not properly cared for the skin, either by neglecting bathing or from excessive bathing with hot water with or without soap. Offensive odor and yellowish tints result from reabsorption of effete matter. Other conditions have characteristic odors: Addison's disease, negro-like; hepatic abscess, like liver; jaundice, musky; measles, like freshly plucked feathers; acute rheumatism, sour; scarlet fever, like new bread; uremia, like ammonia or urine. A doughy feeling and pale color are evidences of poor circulation, and possibly some serious organic disorder.

**Skin
Revelations**

HAIR.—Hair in health has luster and gloss, is neither brittle nor excessively oily. Baldness is often due to lack of cleanliness and scalp ventilation and to anemia. Brain congestion also has much effect upon the loss of hair. But the chief cause is heredity.

REQUIREMENTS FOR HEALTH RECOVERY.—In order to be able to give intelligent treatment, one should strive to ascertain what organs, structures or tissues are involved and in what manner they vary from the normal standard of health.

When an organ or a structure becomes highly tense its normal action is interfered with by diminished caliber of the vessels which permeate it. Too great relaxation of tissues is an indication of deficient organic power. Methods of treatment, therefore, while having for their first object the purification of the blood-stream and the building of vitality or nerve power, should aim to relax tense and contracted conditions and to tone up and stimulate relaxed conditions. These results may best be accomplished by means of hydrotherapy, heliotherapy, electrotherapy, and manual therapy, appropriate exercises, deep breathing, air-baths, sun-baths, rest of many organs through fasting or a modified diet and the other natural measures discussed in the preceding volume. One should aim to remove all accumulations, obstructions and poisons, select a suitable vitality-building diet, fast if necessary, provide a

proper environment, induce ease of mind and in all cases make the body as comfortable as possible, in accordance with the instinctive (but unspoiled) demands of the patient.

Curative
Processes

In the consideration of the various diseases listed in this and the final volume it is assumed that the reader is more or less familiar with the contents of the first six volumes, and that he has at least a general idea of the natural curative processes we employ, as described in Volume VI, including those brought about by diet, fasting, hydrotherapy, mechanical measures, exercises and other allied influences.

It is essential that the student give his careful attention to the matter contained in the other volumes in order intelligently to apply the treatment suggested for each particular disease. Special dietetic, fasting and vitality-building routines are referred to by number in connection with various diseases and are fully described in Section 6 of this volume.

MANIFESTATIONS OF DISEASE.—On the following pages appear some of the most prominent symptoms which usually mark the onset or characteristic phase of various forms of disease. To determine just what disease the patient may have, turn to the particular kind of pain or other derangement which is *most evident*, and then determine what particular ailment is the most likely cause of that symptom.

The illustrations showing the relative positions of the various organs of the body and the diagrammatic photographs showing the significance of pain in various regions of the physical organisms also will be of assistance in this respect.

IMPORTANT SIGNS AND SYMPTOMS OF ORGANIC AND FUNCTIONAL DISTURBANCES

(The diseases listed as indicated are the most common causes of the sign or symptom; there usually are several others, less common.)

ABDOMEN.

<i>Appearance.</i>	<i>Disorders Indicated.</i>
Abdomen diminished in size.	CHRONIC DYSENTERY. MENINGITIS. LEAD COLIC. PERITONEAL ADHESIONS. PYLORIC OBSTRUCTION. STRICTURE OF ESOPHAGUS.
Enlargement in epigastrium (upper abdomen).	HYSTERIA. CANCER OF STOMACH. DILATATION OF STOMACH (TO LEFT). DISTENDED GALL-BLADDER (TO RIGHT).
Enlargement in hypogastrium (lower abdomen).	DISTENTION OF BLADDER. OVARIAN TUMOR. ENTEROPTOSIS. ACCUMULATION OF FECES IN BOWELS. DROPSY. FLATUS. RICKETS (ENTIRE ABDOMEN, IN CHILDREN).

CHEST.

General enlargement of one side of chest.	LARGE PLEURAL EFFUSION. EMPYEMA. HEMOTHORAX. PNEUMOTHORAX.
Breathing with muscles of the ribs only.	ABDOMINAL INFLAMMATION; INFLAMMATION OF THE DIAPHRAGM.
Breathing superficial (shallow).	PLEURISY, ACUTE. COLLAPSE OF LUNGS. FRACTURED RIBS. INTERCOSTAL PARALYSIS. PARALYSIS OF DIAPHRAGM.
Breathing labored, deep.	SPASMODIC ASTHMA.
Breathing rapid.	INFLAMMATION OF LUNGS. FEVER.
Bulging at base of lung.	FLUID FROM PLEURISY SETTLING AROUND THE LOWER LOBE.

CHEST.—Continued.

<i>Appearance.</i>	<i>Disorders Indicated.</i>
Bulging at front upper part of chest.	EMPHYSEMA. ANEURYSM.
Bulging in region of heart.	FLUID IN HEART SAC (PERICARDIUM). ENLARGEMENT OF HEART.
Bulging of right side of chest.	ENLARGEMENT OF LIVER. HEPATIC ABSCESS. PLEURAL EFFUSION.
Jerky respiration.	SPASMODIC ASTHMA. CHOREA. INTERCOSTAL NEURALGIA. LARYNGISMUS. FRACTURED RIBS.

EAR.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Inflammation, pain, swelling of the drum and lining membrane of middle ear, watery discharge with suppuration.	OTITIS MEDIA (INFLAMMATION OF MIDDLE EAR).
Bleeding from ear.	TRAUMA (INCLUDING A BLOW ON THE CHIN). FRACTURE OF BASE OF SKULL.
Swelling in meatus.	BOIL. POLYPUS. MASTOIDITIS. ABSCESS OF PAROTID GLAND.

EYELIDS.

Boil (small) on eyelid with heat, redness, swelling and rapid suppuration.	STY.
Inflammation and thickness of the lining membrane of the eyelids with formation of granulations on inner side of upper lids.	TRACHOMA (GRANULAR LIDS).

HEAD AND FACE.

Doughy swelling of glands on one or both sides of jaw; increase of saliva, chilliness, debility, moderate fever, pain in angle of jaw.	MUMPS. PAROTID ABSCESS.
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HEAD AND FACE.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Full, red face, with blood-vessels of eyes injected.	EXAGGERATED HEART-ACTION. CONGESTION OF THE BRAIN. ALCOHOLISM.
Head bent to one side.	CONVULSIONS. PARALYSIS OF ONE HALF OF THE BODY. WRYNECK. RHEUMATISM. STRAIN. DISLOCATION OF BONES OF NECK (VERY RARE). SWELLING OF GLANDS OF NECK.
Head increased in size.	CHRONIC HYDROCEPHALUS. CRETINISM. MYXEDEMA.
Hectic flush.	CONSUMPTION. ENTERIC FEVER.
Pallor of face.	COLD STAGE OF FEVER. AORTIC REGURGITATION. CHRONIC DISEASES. COLLAPSE. SHOCK. SYNCOPÉ. CONCUSSION OF BRAIN. POISONING BY DEPRESSANTS. CHILLS.
Pale or greenish face.	ANEMIA. PERNICIOUS ANEMIA. CHLOROSIS.
Yellowish tinge of face.	JAUNDICE (YELLOW OR BRONZE COLOR). PERNICIOUS ANEMIA (LEMON-YELLOW).
Itching of nostrils.	WORMS, ALIMENTARY DISORDERS. CORYZA. HAY-FEVER.
Swelling of the face and eyelids.	BRIGHT'S DISEASE. MITRAL REGURGITATION. DENTAL ABSCESS. FACIAL NEURALGIA.
Wrinkles across forehead.	EXTERNAL PAIN, PRO- NOUNCED.
Wrinkles from forehead to root of nose.	DISTRESS, ANXIETY, SEVERE INTERNAL PAINS. SEVERE INTERNAL INJURY.
High, square, prominent forehead.	RICKETS. HYDROCEPHALUS (SOMETIMES).

PERSPIRATION.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Ammonia-like odor.	TYPHOID.
Diminished perspiration.	DROPSY. DIABETES.
Night-sweats.	CONSUMPTION. WEAKNESS.
Profuse perspiration.	ACUTE RHEUMATISM (ACID, CONTINUOUS PERSPIRATION). INFLUENZA. AGUE.
Sour-smelling sweats.	GOUT. RHEUMATIC FEVER. GLANDERS.

POSTURE.

<i>Position of the Body.</i>	<i>Disorders Indicated.</i>
Absolute immobility.	CATALEPSY. COMA.
Distorted features, impaired motion of the limbs.	PARALYSIS.
General enlargement of the body.	GENERAL DROPSY.
Great and unusual languor.	THE BEGINNING OF AN ACUTE DISEASE. ENDOCARDITIS. HEMORRHAGE.
Head thrown back.	DISEASE OF LARYNX AND WINDPIPE. CEREBROSPINAL MENINGITIS. TETANUS.
Irregular and constant motion when awake.	ST. VITUS'S DANCE.
Lying on back.	APOPLEXY. ORGANIC DISEASE OF THE BRAIN. RHEUMATISM.
Lying on face.	COLIC.
Lying on one side.	PLEURISY, OR INFLAMMATION OF THE LUNGS. (PATIENT GENERALLY LIES UPON DISEASED SIDE IF ONE LUNG ONLY IS AFFECTED—THE SOUND SIDE IN PLEURISY. IN CASE OF LARGE ACCUMULATION OF FLUID FROM PLEURISY, PATIENT LIES ON SIDE AFFECTED.)

POSTURE.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Maintaining sitting posture only.	DISEASES OF HEART, LUNGS OR KIDNEYS WHICH INTERFERE WITH BREATHING. ASCITES.
Restlessness and tossing.	BEGINNING OF ACUTE INFLAMMATIONS.

THE SKIN.

Distended pores, black spot in center.	BLACKHEADS.
Flushed appearance.	BEGINNING OF MOST ACUTE DISEASES, WITH FEVER.
Dark red, painful swelling, circumscribed, surrounded by dusky-red skin, appearing most often on neck, back or buttocks.	CARBUNCLE. BOIL (SOMETIMES).
Inflammation of skin with watery pimples forming scales or crusts, itching, burning; watery or yellow sticky discharge or oozing; raw surface beneath crusts; or dry scaly patches without itching, but with some redness.	ECZEMA (SALT RHEUM).
Pallor.	ANEMIA. LOSS OF BLOOD FROM HEMORRHAGE. SHOCK. SYNCOPÉ.
Fever, chilliness, tingling of affected part, which becomes glossy, bright red or violaceous, swollen, hard, hot and tender to touch, sharply defined, fever, appetite lost.	ERYSIPÉLAS.
Tenderness.	LOCAL INFLAMMATION. NEURALGIA. NEURITIS.
Bright red rash all over body, first appearing on neck or chest, composed of fine red dots, not raised above level of skin, absent immediately around mouth, sore throat, fever.	SCARLET FEVER.
Eruption resembling scarlet fever, no sore throat, no fever.	EFFECT OF CERTAIN DRUGS: ANTIPYRINE, COPAIBA, QUININE, ETC. GERMAN MEASLES (SOMETIMES).

THE SKIN.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Eruption of small, pale or brick-red velvety spots on face, then on trunk and extremities, with itching or burning, moderate fever, preceded by sneezing, hoarseness, cough, running from eyes and nose, eyes red and sensitive to light.	MEASLES.
Eruption of pale or dark red, hard (not velvety) papules on forehead, then rest of face, finally on body; high fever; after a few days papules turn to vesicles, then pustules, finally crusts. Chill, intense frontal headache, pain in back, and vomiting precede the eruption.	SMALLPOX.
Eruption of several successive crops of papules on face, chest and rest of body, which in 24 hours change to vesicles; little fever, no pain in back.	CHICKEN-POX.
Red, painless, hard sore on genitals, which enlarges and breaks in center, leaving ulcer; near-by glands enlarge and become hard.	SYPHILIS—FIRST STAGE (CHANCER).
Dull copper-hued eruption on abdomen, chest, arms, shoulders, genitals; ulcers on throat or tonsils, sore throat, moderate fever, languor, headache, boring pains, indigestion.	SYPHILIS—SECOND STAGE (WITHIN SIX OR EIGHT WEEKS AFTER INFECTION).
Pustules on body which form dry ulcers, with dry crusts and scales; loathsome sores, leaving bad scars; ulceration of throat, palate, nose; hard lumps in muscles and under skin.	SYPHILIS—THIRD STAGE (ONE OR MORE YEARS AFTER INFECTION).
Inflamed swelling, pain, formation of pus, tendency to pointed form and to discharge.	ABSCESS.

STOMACH.

Intense griping, agonizing pain in stomach usually extending to the back, with belching of gas; faintness; symptoms partially relieved by pressure over the stomach.	PAIN INDEPENDENT OF EATING—NEURALGIA. PAIN RELIEVED BY MILK OR CEREAL—ULCER. PAIN INCREASED BY EATING—GASTRITIS.
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STOMACH—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Indigestion, lack of acidity, flatulence, loss of appetite, foul breath, great debility, emaciation, vomiting, coffee-ground vomit from retained blood; pain more or less continuous, acute or dull, aggravated by pressure.	CANCER OF THE STOMACH.
Loss of appetite, sense of fullness and discomfort, nausea, eructations, tongue heavily coated, sometimes vomiting.	DYSPEPSIA.
Sudden paroxysms, jerking of feet, clenching of hands, sudden drawing up, then straightening of legs, flatulence, distention of the abdomen, contortions of the whole body, hands and feet cold, hard crying.	COLIC IN INFANTS.

THROAT.

<i>Appearance.</i>	<i>Disorders Indicated.</i>
Enlarged throat.	APPROACH OF PUBERTY IN FEMALES. (ENLARGED THYROID.)
Swellings about the neck.	ENLARGEMENT OF GLANDS.
Swelling of glands of neck, grayish white membrane in throat, rapid, weak pulse, scanty urine; chills, moderate fever, sore throat, painful swallowing, fetid breath, prostration.	DIPHThERIA.
Swollen, red, spongy gums, sometimes bleeding; flaky, white deposits on lining membrane of mouth, fever, painful, watery mouth, bad breath.	THRUSH (STOMATITIS).
Tonsils swollen, dry and painful, swallowing difficult and painful, fever, headache, general aching, often cheesy patches on tonsils and throat.	TONSILLITIS. (WITH PUS AND HIGH FEVER ADDED—QUINSEY.)
Tonsils enlarged, may contain minute cavities containing foul cheesy matter, mouth-breathing, difficult swallowing, snoring during sleep, bad breath, thick voice, defective hearing (usually).	ENLARGED TONSILS AND ADENOIDS.

TONGUE.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Soft white coating.	DERANGEMENT OF STOMACH, OR BOWELS, OR BOTH. CA- TARRH OF BILE-DUCTS.
Tongue furred and dry.	LOCAL INFLAMMATION. EX- ANTHEMATA. NASAL OB- STRUCTION. PYEMIA. JAUNDICE.
Tongue dry, parched, tender and dark brown; pushed out with great difficulty and trembling.	SEVERAL FORMS OF SEVERE FEVER.
Tongue parched, tender, dark brown; pro- truded with difficulty, trembling.	SCARLET FEVER.
Superficial, clean ulcerations, along margin of tongue, corresponding to sharp edges of tooth remnants.	SIMPLE ULCERATION OF TONGUE FROM SHARP TOOTH EDGES.
Deep, dirty-grayish ulcerations of rapid development, edges undermined, glands below jaw enlarged—often associated with sore throat. Other symptoms or his- tory of syphilis often present. Patient usually under forty years of age.	SYPHILITIC ULCERS OF TONGUE.
Ulceration, deep or shallow, of slow devel- opment, edges and bottom of ulcer studded with fine granules, patient usually under forty. Tuberculosis of other organs pres- ent or absent. Glands below jaw not markedly enlarged.	TUBERCULOUS ULCERS OF TONGUE.
Ulcerations, deep, of slow development, edges hard and thickened, hard swelling of glands below jaw, patient over forty. Often general emaciation present.	CANCER OF TONGUE.

APPETITE.

Loss of appetite or ravenous hunger, dis- turbed sleep, great restlessness, plucking at the nose, bad breath, lassitude, dark circles around the eyes, indigestion, strain- ing at stool, itching of anus, grinding of teeth in sleep, colicky pains, flatulence, sweating about head at night.	INTESTINAL PARASITES.
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APPETITE.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Appetite markedly increased, ravenous (Bulimia).	DIABETES. HYSTERIA. CONVALESCENCE FROM ACUTE DISEASES. GASTRIC NEUROSIS. CHLOROSIS. EPILEPSY. HYPERCHLORHYDRIA. WORMS.
Appetite markedly diminished, sometimes completely absent (Anorexia).	DISEASES OF STOMACH. ACUTE INFECTIOUS DISEASES. HYSTERIA. CHRONIC ALCOHOLISM. CANCER OF LIVER. FECAL ACCUMULATION. SUPPURATIVE CONDITIONS.
Appetite morbid, patient eating things not food, sometimes disgusting substances.	HYSTERIA. CHLOROSIS. IDIOCY. ANEMIA. INSANITY. PREGNANCY (SOMETIMES).

CHILLS.

Chilliness followed by fever; stabbing pains in chest; full breath increases pain. One or both sides may be affected. Coughing increases pain. Catchy breathing.	PLEURISY, ACUTE.
Chilliness, debility, soreness and constriction behind breast-bone, irritation, dry, painful cough becoming loose with partly mucous, partly purulent expectoration; slight fever, difficult breathing, respirations only slightly increased, or normal.	BRONCHITIS, ACUTE.
Chilliness along spine; fever; inability to get warm; hacking cough; aching joints. Rusty-colored viscid expectoration; pain inside chest; rapid breathing, flushed face.	LUNG FEVER (PNEUMONIA).
Chilliness, sneezing, severe headache, pains all over, especially in bones, marked prostration, fever, sore throat, headache, increase of pulse and respiratory rate.	BEGINNING OF SEVERE COLD, INFLUENZA, ACUTE TONSILLITIS, AND OTHER ACUTE INFECTIOUS DISEASES.
Severe chills for half hour or more, followed by a few hours of high fever, ending in a sweat; headache, pains in body. Attacks recurring every other, third or every day. Temperature normal between attacks.	MALARIA.

COUGH.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Hoarse cough.	BEGINNING OF COLD. LARYNGITIS. MEASLES.
Hollow and barking cough.	LARYNGITIS.
Dry cough in paroxysms becoming violent; slight fever; sneezing, running from nose; eyes congested; face bluish, veins distended; long-drawn shrill whoop at end of paroxysm, often followed by vomiting.	WHOOPIING COUGH.
Expectoration of thick, tenacious mucus, loud wheezing in chest; sudden attacks generally at night, great oppression in chest, distressed breathing, profuse perspiration.	ASTHMA.
Cough with partly purulent expectoration; soreness behind breast-bone; short breath.	BRONCHITIS.
Ringling cough, becoming muffled; hoarseness and difficult breathing continue after a spasm passes; great restlessness, clutching at the throat, noisy inspiration.	TRUE CROUP. CATARRHAL (FALSE) CROUP.
Cough, sneezing and running from nose, breathing difficult, abrupt onset of disease, great prostration, chilliness, stiffness, pain in muscles and head, fever, aching in limbs and loins; increase of pulse and respiratory rate.	INFLUENZA (LA GRIPPE).
Wheezing cough.	CHRONIC BRONCHITIS.

CONSTIPATION.

Aggravated constipation, veins of rectum distended in little lumps, may protrude, bleed, itch or be painful.	PILES.
Constipation with straining at stool, severe descent or protrusion of mucous membrane of lower bowel through anus; irritation. Desire to stool after defecation has been completed.	PROLAPSUS ANI.
Constipation, with headaches, general discomfort, relieved by movement of bowels, flatulence, lassitude.	HABITUAL CONSTIPATION.

CONSTIPATION.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Constipation, with headaches, etc., changing at times to diarrhea or abdominal cramps.	CHRONIC ENTERITIS OR COLITIS. APPENDICITIS.
Constipation gradually aggravated, accompanied by severe abdominal pains. (Sometimes wrists drop, in lead-poisoning.)	LEAD-POISONING. CHRONIC OBSTRUCTION OF BOWELS. INTESTINAL TUMORS.

DEPRESSION.

Anxiety, depression, irritability, restlessness, pain in wound, slight fever, increasing difficulty in swallowing, spasm of muscles of neck (especially at sight of water), salivation, convulsions, delirium, exhaustion, suffocation, heart-failure.	HYDROPHOBIA. (SYMPTOMS ARE CHIEFLY THE OUTCOME OF FEAR OF CONSEQUENCES OF BITE OF SOME ANIMAL.)
Loss of flesh and strength, debility, sallow complexion, loss of appetite, disturbed sleep, mental depression, irritability, tendency to lie and deceive, craving for some form of opium, moral obliquity.	OPIUM POISONING (CHRONIC).

EXCREMENT. (See *Feces*.)

FECES.

Mucous stools, colicky pains, voracious appetite, debility, night-terrors, intense itching of nose and genitals.	INTESTINAL PARASITES.
Stools semi-fluid to fluid, foul smelling.	DIARRHEA.
Stools fluid, watery (rice-water), colorless. Cramps in abdomen and extremities, unquenchable thirst.	CHOLERA.
Stools fluid, like pea-soup, ill-smelling.	TYPHOID FEVER.
Stools fluid, mixed with blood and mucus, colicky pains, and tenesmus.	DYSENTERY.
Stools watery, brownish or yellowish, frequent, with mucus or particles of undigested food, much flatus, colicky, abdominal pain.	ENTERITIS, ACUTE CATTARRHAL.
Stools greenish, soft, mushy, of a sour odor, in infants.	ENTERITIS.

FECES.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Stools black, resembling coffee-grounds.	INTESTINAL HEMORRHAGE, USUALLY FROM ULCER OR CANCER OF STOMACH OR UPPER SMALL INTESTINE.
Stools hard, gray, clay-like in appearance.	GALLSTONES. BILE FLOW OBSTRUCTION. LIVER DISEASE.
Stools hard or soft, mixed with blood and pus, pain on defecation.	CANCER OF RECTUM. ULCERATION OF RECTUM.
Stools contain parasites or their ova.	INTESTINAL PARASITES.
Stools contain membranous formations.	MEMBRANOUS COLITIS (RARE).
Stools flattened, more or less ribbon-like.	HEMORRHOIDS. RECTAL CANCER. UTERINE PROLAPSUS. RETROFLEXION, OR FIBROIDS. ENLARGED PROSTATE.

FEVER. (See also *Temperature.*)

Chill followed by fever, with face flushed, eyes red, pulse full and rapid, pain in back and limbs, intense thirst, urine scanty. This stage followed by free perspiration, decline of fever, increase of urine. Debility, nausea, vertigo, shivery increasing to severe chill, with chattering of teeth, "goose-flesh."	FEVER-AND-AGUE (MALARIA).
Fever, chilliness, sparse, superficial eruption of several successive crops of vesicles, most abundant on the trunk, especially the back, drying up in two or three days, with depressed, blackish crust in center.	CHICKEN-POX.
Chills followed by rapidly increasing fever and vomiting, intense frontal headache and pain in small of back, skin dry, breathing hurried, red spots first on forehead, face and wrists, having hard, shot-like feel, changing in the course of nine days to depressed vesicles, then to pustules, and finally drying up to offensive crusts. Skin between eruptions swollen, soft, yellow. Great swelling of face. Spots may run together, or black-and-blue spots may form.	SMALLPOX.

FEVER.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Continuous, gradually-developing fever, vague pains, headache, debility, nosebleed, loss of appetite, abdomen distended and tender, rose-colored spots, pea-soup moderate diarrhea, tongue dry, brown, teeth and lips covered with sticky deposit, delirium, sometimes hemorrhages.	TYPHOID FEVER.
Sudden high fever with vomiting or convulsions, may be a chill, rapid pulse, heavily coated tongue, clearing up in 4 or 5 days and showing red spots ("strawberry tongue"), skin bright red, throat red, sore, swallowing painful, glands enlarged, great thirst, scanty urine, fine diffuse red rash, first on neck and chest.	SCARLET FEVER.
Fever, with running nose, catarrh of eyelids, photophobia, sneezing, sore throat, cough, and eruption of soft velvety dark-red papules on skin, first appearing on face, then on trunk. Burning and itching of skin. Frequent attacks of bronchitis.	MEASLES.
High fever with cough, sudden onset, expectoration rusty, severe pain in chest, shortness of breath, blisters on lip, rapid pulse.	PNEUMONIA.
Fever irregular, severe pains in chest on coughing or breathing, cough dry, distressing, and cut short by pain; short breath.	PLEURISY (DRY FORM).
Moderate fever, pain in epigastrium, vomiting, yellow discoloration of skin and eyes, itching, clay-like stools, constipation, dark urine, slow pulse, dull headache, weakness.	CATARRHAL JAUNDICE.
Fever, severe headache, stiff muscles of neck, blisters on lips, frequent vomiting, pains all over body, slow pulse.	MENINGITIS, SIMPLE ACUTE.
Fever, swelling of glands around angle of jaw usually first on one side, interfering with chewing, swallowing, and speaking; at times swelling of testicle, ovary or breast.	MUMPS.
Fever, swelling, redness, painfulness and tenderness of joints, frequent, copious, sour-smelling sweats.	ACUTE RHEUMATISM.

 FEVER.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
High fever, general prostration, frequent loss of consciousness, sweats, general pains, chills, swelling of various glands, headaches, often abscess.	BLOOD-POISONING.

 HEART AFFECTIONS.

Heaving impulse of heart against chest, shortness of breath, headache, ringing in ears, palpitation, indigestion, sleeplessness, weight and discomfort in chest.	DILATATION OF HEART.
Pain in region of heart, sense of oppression, anxiety, difficult breathing, fever, irregular heart action, palpitation, vertigo, headache. Swelling of legs or general dropsy, bluish discoloration of lips and fingers.	INFLAMMATION OF HEART. VALVULAR INCOMPETENCY. EDEMA OF THE LUNGS.
Severe pain in heart, sense of suffocation, fear of death, face pale; pulse variable, pain in left shoulder; attacks sudden.	NEURALGIA OF HEART. ANGINA PECTORIS.

 LUNG DISTURBANCES.

Attacks of shortness of breath, wheezing, usually at night, ending after a few hours with cough and copious expectoration. No discomfort when free from attacks.	ASTHMA.
Bleeding from lungs, contraction of chest, swelling of feet. Fatigue and short breath on slight exertion; loss of appetite, imperfect digestion, paleness with hectic flush over cheek bones, irregular fever, hacking cough, night-sweats, loss of weight, pearly white sputum sinks in water.	TUBERCULOSIS, PULMONARY (ADVANCED).
Difficult breathing, warmth or tenderness in chest, salty taste in the mouth, blood may gush up or be coughed up; will be bright red, fluid and frothy, taste sweetish or salty; sweats, pallor, and fright.	HEMORRHAGE FROM LUNGS.
Distressing cough, first dry, then loose, tingling of larynx, scratching sensation or pain behind the breast-bone.	BRONCHITIS (ACUTE).

LUNG DISTURBANCES.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Frequent attacks of bronchitis, on the slightest exposure to draught, cold or chilliness, worse at night, loss of appetite.	BEGINNING CONSUMPTION. CHRONIC BRONCHITIS.
Pain in chest, tongue coated; chill; sharp pain in side; sharp rise in temperature; shallow, rapid, difficult breathing; short, hard, dry cough; rusty expectoration; fever, flushed face.	PNEUMONIA.

NERVOUS SYSTEM.

Boring pains.	SYPHILIS. SPINAL CARIES. GOUT. RHEUMATISM.
Black spots floating before the eyes.	CONSTIPATION. BRAIN AFFECTIONS. TOXEMIA. LIVER DISORDERS. DUODENAL CATTARRH. HYSTERIA. HYPERTROPHY OF HEART. CATARACT (EARLY). EYESTRAIN.
Loss of moral sensibility.	MANIA. DEGENERATION. DELIRIUM. BRAIN INFLAMMATION. HYSTERIA. DEMENTIA. EPILEPSY. DRUG ADDICTION.
Shooting, tearing pains.	NEURALGIA. CANCER.
Trembling.	PARALYSIS AGITANS. FEVER. NERVOUS AFFECTIONS. EXOPHTHALMIC GOITER. PARETIC DEMENTIA.

PAIN.

Abdominal pains with constant desire to evacuate the bowels, with much straining, and never-get-done feeling; small stools containing mucus and blood; prostration.	DYSENTERY.
Backache, headache; discharge from the vagina, slight or profuse, thin or thick, lumpy or stringy, odorless or offensive; burning and itching of genitals.	LEUCORRHEA. (WHITES). GONORRHEA.

PAIN.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Colicky pains in bowels; diarrhea with liquid stools, sometimes blood-streaked; tenderness, high fever, rapid pulse, patient lies on back with legs drawn up; thirst; emaciation.	INFLAMMATION OF THE BOWELS (ENTERITIS).
Cramps in the stomach and abdomen, with nausea and vomiting; frequent and copious evacuations, intense thirst, headache, moderate fever, rapid, feeble pulse, great prostration, coldness of extremities, rapid loss of weight and strength; sometimes cold hands and feet.	CHOLERA MORBUS.
Dragging pain in nape of neck, headache, constipation; weight in lower abdomen, pressing and bearing down sensations; dull pain in small of back, dragging sensation in groin, feeling of fullness around anus, and more or less nervousness.	DISPLACEMENT OF UTERUS.
Dull, heavy pain at base of chest or in region of sternum; cough at first tight, later loose with expectoration.	ACUTE BRONCHITIS.
Pain in groin, nausea, vomiting, constipation, cold sweat, anxiety, intestines protrude in groin and cannot be pushed back, inflammation, gangrene.	HERNIA (RUPTURE), STRANGULATED.
Paroxysmal pain of severe, twisting or boring nature centering above navel; better from friction, pressure, or heat. Abdomen usually distended; may be cold sweat, feeble pulse and vomiting.	COLIC (INTESTINAL).
Pain near umbilicus, abdomen hard, persistent constipation, no rigors, blue line around gums; history of having been exposed to lead by inhalation or otherwise.	LEAD COLIC (CHRONIC LEAD-POISONING).
Sharp pain in back, accompanied by a chill and fever, vomiting, urine often contains blood or gravel. Pain radiates into groin. Testicle of affected side retracted.	KIDNEY STONE (RENAL COLIC).
Sharp pain in upper abdomen, tenderness in region of liver, vomiting, constipation, slight jaundice, dark urine.	BILIARY COLIC (GALLSTONES).

PAIN.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
General abdominal pain becoming localized about right groin, vomiting, constipation, tympany, slight fever, rapid pulse, rigidity of muscles of right side of abdomen, sometimes a tumor mass above right groin.	APPENDICITIS, ACUTE.
Restlessness and pain, hollow eyes, parched lips, pale face, rapid, feeble pulse, rapid emaciation, great exhaustion, vomiting and purging, thin, watery, musty-smelling stools; intense thirst.	CHOLERA INFANTUM.
Sharp and cutting pains in abdomen, with great tenderness, distention of abdomen, high fever, hiccough, nausea, vomiting, and constipation; patient lies on back with knees drawn up; sudden onset with chills.	PERITONITIS, ACUTE.
Sharp, sudden, tearing pain in chest, aggravated by breathing and coughing.	PLEURISY.
Shifting pain and tenderness of the muscles of back affecting one or both sides.	LUMBAGO.
Sharp pain in lower abdomen, tenderness in hypogastrium, frequent urination, vesical tenesmus, urine cloudy, and small in quantity.	CYSTITIS (CATARRH OF BLADDER).
Sharp pain in region of bladder, especially at end of urination, referred to end of penis, worse when on feet and after exertion, frequent urination. Urine cloudy, often a few drops of blood are passed at end of urination. Often sudden stoppage of urine during passage.	STONE IN BLADDER.

PULSE.

Normal pulse 70 to 80 beats a minute, regular, of medium softness.

<i>Character of.</i>	<i>Disorders Indicated.</i>
Pulse frequent (90–110), regular, no fever.	DISEASES OF HEART. BEGINNING TUBERCULOSIS. MANY DISORDERS. SOMETIMES AN INDIVIDUAL CHARACTERISTIC.

PULSE.—Continued.

<i>Character of.</i>	<i>Disorders Indicated.</i>
Pulse frequent (90–110), regular, <i>hard</i> , no fever.	NEPHRITIS (BRIGHT'S DISEASE). ATHEROMA.
Pulse frequent (90–150 and over), <i>irregular</i> , dropsy, no fever.	DISEASES OF HEART (GRAVE CONDITION).
Pulse frequent (150 and over), faint, <i>thready</i> ; clammy perspiration.	STATE OF COLLAPSE WITH CARDIAC BREAKDOWN, ESPECIALLY FIBRILLATION; OR HEART-BLOCK.
Pulse frequent and pounding (120–150 and over), fairly regular, occurring in attacks, no fever.	SIMPLE ATTACKS OF PALPITATION OF HEART (PAROXYSMAL TACHYCARDIA).
Pulse frequent (120–150 and over), fairly regular, no fever, trembling of hands, bulging of eyes, enlargement of thyroid gland.	EXOPHTHALMIC GOITER.
Pulse frequent (100–120), full, regular, fever present.	ALL INFECTIOUS DISEASES.
Pulse frequent (120–150 and over), faint, irregular, <i>thready</i> , fever.	INFECTIOUS DISEASE (GRAVE CONDITION). ADVANCED STAGE OF MENINGITIS.
Pulse slow (60), regular, or slightly irregular, fever, headache, vomiting.	ONSET OF MENINGITIS.
Pulse slow (50–70), regular or slightly irregular, arteries hard, dizziness.	ARTERIOSCLEROSIS.
Pulse slow (50–70), regular, yellow discoloration of skin, fever present or absent.	JAUNDICE.
Pulse slow (30–70), irregular, no fever.	CERTAIN DISEASES OF HEART. (ANGINA AND OTHERS).

STOOLS. (See *Feces*.)

SWELLING.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Non-painful, non-tender swelling of thyroid, when large causing difficult breathing, headache, flushed face, sometimes shooting pain.	GOITER.

SWELLING.—Continued.

<i>Condition.</i>	<i>Disorders Indicated.</i>
Swelling and suppuration of glands of neck, groin and under arms, debility, emaciation, free perspiration, especially about the head.	SCROFULA. TUBERCULOUS GLANDS.
Swelling of feet, hands, legs, abdomen or chest, surface hard and remains pitted after pressure of finger.	DROPSY. (IN LUNG, LIVER, KIDNEY, OR HEART DISEASE.)
Swelling with redness, heat or tenderness of part affected—often leading to formation of pus.	INFLAMMATION.
Swelling of face and eyelids, may be general swelling; frequent urination, scanty amounts, urine smoky, contains albumin, sometimes blood; general weakness and shortness of breath.	BRIGHT'S DISEASE (NEPHRITIS), ACUTE OR CHRONIC.

TEMPERATURE. (See also *Fever*.)

Low or subnormal temperature.	LOW VITALITY. COLLAPSE. HEMORRHAGE. MANY DISEASES AND DRUGS.
Cold hands and feet.	POOR CIRCULATION, NERVOUS DISORDERS. COLIC. ANEMIA. HEART DILATED.
Local elevation of temperature.	INFLAMMATION.
Very high temperature (up to 110).	APPROACHING DEATH IN SOME DISEASES OF THE NERVOUS SYSTEM (MENINGITIS, ETC.). SUNSTROKE.

URINE.

<i>Abnormal Conditions.</i>	<i>Disorders Indicated.</i>
Albumin in urine.	BRIGHT'S DISEASE. PUS IN KIDNEY OR BLADDER.
Burning discharge of small amounts of urine, with urging acute pain or passage of stone, with bloody urine, sudden stoppage of stream of urine.	STONE IN BLADDER.

URINE.—Continued.

<i>Abnormal Conditions.</i>	<i>Disorders Indicated.</i>
Diminished amount of urine.	DIARRHEA. DYSENTERY. PRO-FUSE SWEATING. LEAD COLIC. ACUTE NEPHRITIS. PROLONGED VOMITING.
Increase of urination.	DIABETES. HYSTERIA. SOME FORMS OF KIDNEY DISEASE. AFTER COPIOUS DRINKING, AND CERTAIN DRUGS, INCLUDING COFFEE AND TEA.
Retention of urine in the bladder.	PARALYSIS. TYPHOID FEVER. ENLARGED PROSTATE. STRICTURE. BLADDER STONE OR CLOT. CYSTITIS.
Red or yellow sand deposits in urine (uric acid).	FEVERS. ACUTE RHEUMATISM. MENTAL DEPRESSION.
Sugar in urine.	DIABETES. SOME FORMS OF NEURASTHENIA. BOILS. CARBUNCLES. EXOPHTHALMIC GOITER. TONSILLITIS (TRANSIENT).
Urine dark, stools light-colored. Yellow skin and whites of eyes.	JAUNDICE.
Urine turbid, mixed with pus, containing shreds, urination painful, tenderness and puffiness at entrance of urethra, pain in genital organs.	GONORRHEA.

DEATH, SIGNS OF.—1. To determine if a person is dead, a clinical thermometer may be inserted far into the rectum and allowed to remain five minutes. If it registers 90 degrees or more, life is present; it is below 80 degrees in death, though the internal temperature will not drop for an hour or more.

2. Form a small blister on the skin by heat; open it widely. If the part beneath is red and the edges dark-red, there is life. If colorless, death is indicated.

3. Ascertain lung action by placing a shallow dish of water on the chest to note movement of the water; by a feather before the nostrils to note passage of air; or by a cold mirror before the nose and mouth to note moisture from the breath.

Indications
of Death

4. In three days, on the average, putrefaction begins, perceptible by disagreeable odor and distension of the abdomen by gas. If doubtful, wait until this takes place. The electrical test is an accurate one, but requires expert knowledge.

There are many signs of death; but practically all of them, with the single exception of putrefaction, are fallible and cannot be considered conclusive. The following abridged general summary of the signs of death is taken from Hereward Carrington and John R. Meader's Book, "Death: Its Causes and Phenomena:"

"Observations of the circulation are inconclusive. Often, the heart may be beating, yet is too faint to be heard. On the other hand, the heart may have ceased to beat, but your own pulsations will be felt, and a false notion gained that the subject is alive. Other tests, such as cutting a vein, coagulation, ligature of the finger, cupping, leeching, etc., show merely that the circulation has stopped; not that it cannot be restored by proper measures, such as cardiac massage, hot packs, etc.

"The temperature post-mortem is a very uncertain sign. The little livid spots, known as cadaveric sigillations, once thought to be an infallible sign of death, may occur before death in certain diseases, such as cholera, uremia and asphyxia and may be absent where there has been abundant hemorrhage.

"The failure of the skin to blister was long thought to be a conclusive sign of death; but this is now known to be untrue. The parchment-like appearance of the skin is also uncertain."

The following signs have in the past been considered sure signs of death, but all of them are now known to be uncertain:

Immobility of a needle stuck in the pericardium; emptiness of the central artery of the retina; disappearance of the papilla of the optic nerve; discoloration of the choroid and retina; interruption of the circulation of the veins in the retina; emptiness of the capillary vessels; corpse-like face; discoloration of the skin; loss of transparency of the hands; emptiness of the temporal artery; white and livid coloring at the points of the fingers; relaxation of the sphincters and the pupil; glazed eyes and haziness of the cornea; insensibility of the eye in regard to strong light; bending of the thumb toward the palm of the hand; disappearance of the elasticity

**Further
Indications
of Death**

of the muscles; non-coagulability of the blood, absence of a humming noise in the auscultation of the finger-points; etc.

After death, a certain odor is often present (odor mortis); but this too, may be absent.

Rigor mortis is a sure sign, if you can be sure it *is* rigor mortis. But the body may be in a state of catelepsy, frozen stiff, etc. It is an uncertain test.

The only reliable sign is the appearance of putrefaction. Even here, spots sometimes appear discoloring the skin in places and resembling decomposition. But, on the whole, the test may be regarded as certain—the only certain test.

Dr. B. W. Richardson sums up the matter thus:

“If all these signs point to death . . . the evidence may be considered conclusive that death is absolute. If these leave any sign for doubt, or even if they leave no doubt, one further point of practice should be carried out. The body should be kept in a room, the temperature of which has been raised to a heat of 84° F., with moisture diffused through the air. In this warm and moist atmosphere it should remain until distinct indications of putrefactive decomposition have set in.”

It is hardly necessary to say that cremation is by far the most sanitary way of disposing of dead bodies.

Putrefaction
Positive Sign
of Death

NURSING AND CARE OF THE SICK

Section 3

AT SOME time in her life nearly every woman is responsible in large measure for the continued good health of well people, usually those of her immediate family, and, as Florence Nightingale said many years ago: "Nearly every woman at some time in her life is obliged to act in the capacity of a nurse to the sick," also usually of her own family. Gaining control of those influences which govern the health of people comes, mainly, from a knowledge of hygiene and sanitation—subjects considered elsewhere. The rudiments of nursing are here presented.

**Every
Woman a
Nurse**

Many homes will be able to provide a trained nurse, with her more exact nursing technique, for sick members. This is all well and good when the nurse is in accord with the method of treatment in use by the family. But a great many nurses are capable of giving and often do give a great deal of trouble when serving in the homes of those who do not desire the methods of orthodox medicine and nursing. They sometimes forget that they are servants, professional and highly trained servants though they be, and they carry such an air of superiority and domination that procedures definitely undesired by the patient or the family may be submitted to by all concerned for the sake of peace. In homes where there is little knowledge of hygiene and the various procedures conducive to the welfare of the sick, the dictation of the nurse may often be of great value. But in such homes the professional nurse is rarely employed, unless sent by some public health service.

These visiting nurses have undoubtedly exercised a salutary influence during the past thirty years or so. The public health nurse is the chief nurse in many homes, the patients receiving comparatively little (or perhaps no) care between her visits. Thousands of homes in cities are fortunate in having such nurses to perform duties which otherwise would be im-

properly done or neglected entirely, but these services are but a small part of their work. One of their chief duties is to educate the home nurses. They also are able to detect early indications of oncoming disease in members of the families they visit and by advising early treatment or care may prevent serious illness. By them the public also is educated as to the importance of cleanliness and other phases of sanitation. Programs for improving the health of a community will be more likely to be successful if there are public health nurses to execute much of the work.

Visiting Nurses

The private professional nurse is usually employed by people in fairly comfortable circumstances. The visiting nurse is available, as a rule, only in the larger cities. In the majority of homes, therefore, any care of the sick must be given by the mother or some other member of the family, a relative or a friend from another family. It is hoped that the rudiments of nursing given in the following pages will help those who may be thus called upon to nurse the sick to master the art of making the patient comfortable, of anticipating as far as possible his or her needs, yet of knowing when to do nothing.

Nurse, Trained vs Practical

A nurse is not a physician. She is "one who has the care of a sick person, performing all the necessary offices in relation to the toilet, giving of food and medicine, etc., under the direction of the physician." A trained nurse is one who has graduated from a nurses' training school. A practical nurse is one who has practical experience in nursing without the special training, though many practical nurses have had some of the preliminary training in nurses' training schools.

It is not inappropriate to state here that many practical nurses are as fully qualified to nurse even the critically ill as many trained nurses. Some of them, in fact, are much more "human" than the trained nurses, and in possession of commendable initiative. The mother who has brought several children through various illnesses may be called a practical nurse for children, even though she may never nurse outside her own family. In this case, especially if the mother is intelligent, there is certain to be a fair degree of initiative in the adoption of measures of relief in time of need.

The system of scientific nursing is based upon the domi-

nance of the case by the physician in charge. There would be continual conflict, highly detrimental to the sick, if nurses made it a rule to disregard orders or to prescribe measures without the physician's knowledge. If a physician is placed in charge of a case he is presumed to know more about the illness than the nurse or any member of the family. That is why his services are engaged. Hence, unless in an emergency or in a case of evident neglect or inappropriate treatment (which conditions arise not at all infrequently), the doctor's orders should be carried out. However, since the authors of this encyclopedia disbelieve in medicine, they consider that the duty of giving the medicines prescribed might well be done away with. Good nursing involves much more than punctuality in giving from one to a dozen medicines and not getting the hours for each mixed.

Physician
Always in
Charge

The statement is often made that only through good nursing was a patient's life saved. The best of physicians readily acknowledge that the influence of the nurse, in cases of critical illness, is as great as the influence of the doctor himself and that the nurse may save or lose a life regardless of what the doctor does. The importance of good nursing for the critically ill can scarcely be overestimated. In the case of surgical operation, often of confinement, or of mental disease, the specially trained nurse is almost a necessity.

Good
Nursing
Saves Lives

Nurses and physicians also claim that the nurse is a necessity when special attention to diet for the sick is required. But the diet prescribed by the average physician being totally or radically wrong and the training of the special nurse being in the preparation of this wrong diet, it is our claim that in this duty the nurse often plays a farce or a tragedy and that her methods almost always require thoroughgoing revision. The mother who understands the principles of physical culture is, in our opinion, capable of *prescribing*, as well as of preparing and giving diet in case of serious illness.

Nurse
versus
Mother

But we do not wish to have any discussion here as to the merits of trained nurses as compared with those of intelligent dependable mothers or other women who may care for the sick, nor upon the qualifications of the busy physician. Our aim is to give principles of nursing, to teach what a model sick-room may be, what the hygiene of the sick-room should

be, how to care for the patient, the bed, and so on. The subjects to follow are given in reasonably logical sequence rather than alphabetically, the latter method being practically out of the question. As the section is short and the headings prominent, and as most cases are not so immediately urgent as those requiring first-aid treatment, there should be no trouble in locating any special subject desired.

**Model Sick-
Rooms**

THE MODEL SICK-ROOM.—The amount of attention that need be given minute details will depend largely upon the nature and probable duration of the illness. But it should be remembered that people who when normal pay little attention to wall-paper, furniture and such, may be greatly disturbed during illness by anything uncomfortable or inharmonious. In a short illness the environment may be of less importance than in a long one; but since many short illnesses are severe and attended by marked sensitiveness, physical and mental, it is always well to make the surroundings of the patient as pleasing and harmonious as circumstances permit. In many homes it will be impossible even to approximate the conditions briefly described here; but as many of these conditions should be secured as possible.

**Importance
of Quiet**

Isolation, quiet, fresh air, sunlight and warmth are indispensable. Hence the room should be near the top of the house and should have any exposure other than northern, preferably southern or western, or both. It should be removed from parts of the house where noises occur, especially the kitchen, the living room and the nursery or play-room. It is best that it open into an adjoining room and have a bathroom near. The room should be moderately large, with two or more windows provided with both light and dark shades. All belongings of others that will be required during the sickness should be removed from bureaus and closets so no one will be coming in to disturb the patient. The floors should be bare, with (except during contagious disease) a few washable rugs. The walls should be tinted in some neutral shade, or covered with a plain paper instead of one that is striped or figured.

All superfluous furniture and decorations should be removed from the room, there being merely the bed, a screen, one or more comfortable but not overstuffed chairs, a small

table or two, a night table, a foot-stool and perhaps a shaded reading lamp. Dainty curtains are permissible as they add cheer to the sick-room. There may also be growing plants and cut flowers; but all dead leaves should be removed daily and fresh water supplied, removing the flowers at night.

Unnecessary noises must be guarded against. The nurse's shoes should have rubber heels, door hinges should be oiled if necessary to prevent squeaking, flapping curtains should be secured, rocking-chairs banned, loudly ticking or striking clocks removed, also papers and other noise-makers—including whispering relatives or friends. A fireplace in the room lends cheer and also insures good ventilation. If other heat is used there should be a vessel containing water on the heater to moisten the air. The adjoining room should have an ice-box or other convenience for holding or generating ice and some safe means for heating food, water, etc. The patient should be provided with a bell to signal the attendant.

Many things are considered necessary for the sick-room by trained nurses. A good many of these are indispensable if the nurse's work is to be efficiently done and the patient saved irritation and inconvenience. But we cannot enumerate all of them. Among the required utensils will be: A large bedpan, a urinal for a male patient or smaller bedpan to serve as urinal for a female patient, hot-water bottle, ice-bag, ice-cap, thermometers for bath and clinical uses, hand-basins, pitchers, drinking glasses and glass drinking tube, bed tray, fountain-syringe bag, with tube, tips and suitable hook for attaching it for use, rubber sheets or oilcloth, blankets for use in bathing, pillows, back-rest, foot-tub, soap-dish with soap (Castile preferred), cotton, gauze, denatured and 95 per cent. alcohol, bath towels, face towels, wash-cloths, plenty of sheets and pillow-cases, napkins, and old linen that may be used for various purposes. Paper bags should be at hand, also, to hold discarded cloths, cotton, gauze, etc., for ultimate burning.

Equipment
for the
Sick-room

Cleanliness of the sick-room is important. A dustless mop, or an ordinary broom covered with a damp cloth, may be used for the floor and dry cheese-cloth dusters for the furniture. If there are rugs they may be cleaned with a carpet-sweeper having the brush dampened, or a vacuum cleaner; but it is best, when possible, to take them outside for cleaning.

**Bed-Making
for the Sick**

The bed should be the most comfortable obtainable, or the most comfortable already in the home. The small bed (half-size or three-quarter size) is much better than the full-size bed. If it is too low it may be elevated on blocks. It should be placed so that it is easily accessible from both sides and the foot and so that it does not face the light. The mattress, pillows and bedding will usually depend on what is available, but so far as possible should be of the best quality, as nothing is too good for the patient. The coverings should be of the lightest material that is sufficiently warm. White rubber sheets are preferable to colored, and may be single or double-faced. However, oilcloth and even newspapers may be used as substitutes. Whatever material is used is placed between the lower and the draw sheet, which latter is used for additional protection of the bed. An ordinary sheet may be folded through the middle crosswise for this draw sheet. It should come several inches above and below the rubber sheet and should be wide enough to come under the lower edge of the pillow.

It should not be necessary to give directions for the ordinary making of beds. Those who will be called upon to act as nurses will have their own methods and it is likely that these will be satisfactory, even if they should fall considerably below



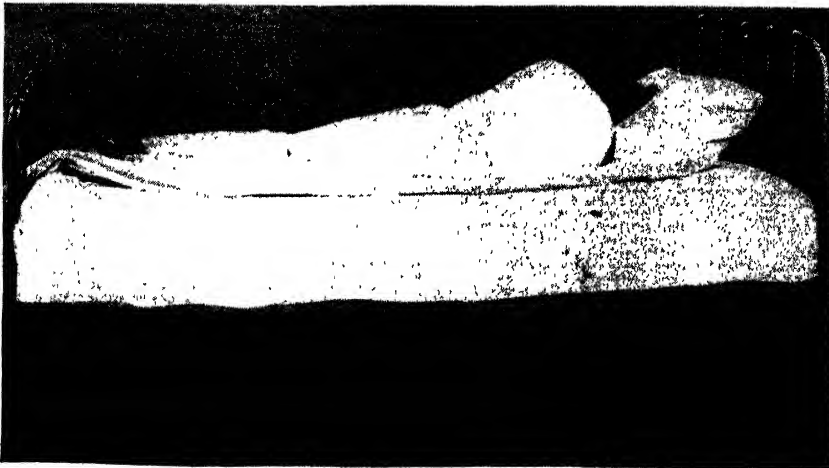
Putting on clean under sheet while patient is in bed. First stage.

the standards of hospitals and trained nurses. But to make a bed with a patient in it is a difficult procedure without special knowledge. Needless to say, it should be managed so as to cause the least possible fatigue and discomfort to the patient.

For convalescents and mildly sick persons the bedding may be changed twice a week, on stated days, the upper sheet taking the place of the lower and a fresh upper one being put on. In acute illness, with much fever and a serious outlook, it will be better not to disturb the patient too often to change the bed unless this can be done adroitly, in which case daily changes may be made. As a matter of routine, the bed of any patient confined to it constantly should be made each night and morning and freshened in the middle of the day if possible. Through the day and the night the bed should be smoothed frequently, and the pillow turned and "plumped."

To make the bed with the patient in it, first be sure that everything required is ready and convenient. Then loosen the bedclothes all around. Lift up on the mattress with one hand as the bedding is drawn, so the patient will not be jarred or the bedding torn. Remove the pillows (while supporting the patient's head), shake them and place them on a chair, leaving them to air till the bed is made, if the patient is com-

**Making the
Occupied Bed**



Putting on clean under sheet. The pillow is removed when making the bed, if the patient is comfortable without it. The patient lies on his side at one side of bed. Sheet is laid lengthwise on bed and smoothed down as far as where the patient lies. The patient then rolls over upon the smoothed out portion of the sheet and the rest of sheet is drawn over bed, smoothed, and tucked in.

fortable without them. Remove the spread and the upper blanket, if there are two. Fold the remaining blanket and the top sheet over the patient. If the nightgown needs changing, change it now. This is a good time also to turn the patient to one side, rub with rubbing alcohol and powder after drying. With the patient on one side near and facing one side of the bed, gather each piece of bedding below him at his back, each piece in its own folds and as close as possible to the patient. Brush the part of the mattress thus exposed with a whisk broom or a towel, but under the patient use the hand.

Place a clean lower sheet, its center crease at middle of mattress, lengthwise, and tuck in at head and foot and at the corners. Bring the rubber sheet over and straighten it, then the pad if there is one; but if the pad is to be changed place half of the fresh one over the rubber and tuck the edge under the mattress. Tuck in half of the fresh draw sheet. Make all these as smooth as possible. This completes one half of the lower part of the bed (that lain upon).

Now gently turn the patient over on the fresh half of the bed. Take each of the changed pieces from the bed, bringing the fresh piece of each kind into place and fitting snugly about the mattress. When this is done turn the patient back to the middle of the bed. Change the pillow-slips and replace the pillows, holding the patient's head with one hand while adjusting the pillows with the other.

Place a fresh top sheet and first blanket over the remaining blanket, hold the fresh sheet while drawing from underneath

Turning the
Patient When
Making
Sick-bed



Changing draw sheet.

those to be removed, and place them on a chair at the foot of the bed. Throw nothing on the floor, but roll for removing from the room. Adjust the top sheet and the blanket and add the second blanket, if this is used, tucking in all of these properly. If the spread is used put it on now, turning it back and turning back the end of the upper sheet over it. The patient now is resting in a fresh bed.

The same procedure may be followed when part of the bed is to be renewed, removing only those parts of the bedding that require changing and turning back over the patient those to be retained.

In case the nurse cannot easily turn the patient alone, another should assist, one being on each side of the bed.

Often it is necessary *to change the patient to another bed*. This should be the same height as the occupied bed. When it has been made ready the upper bedding is folded back from the side nearest the patient. The patient is drawn to one side of the bed and covered with the draw sheet as the upper bedding is removed from him. The two beds are brought together. The nurse then goes to the free side of the fresh bed and draws the patient to it by pulling upon the draw sheet, grasping the occupied pillow, also, with the hand that grasps the upper end of the draw sheet. The patient then is covered with the upper bedding, as usual, the draw sheet being removed and the pillow changed. Two nurses can accomplish this much better than one.

Changing
Patient to
New Bed

A patient may be *kept from slipping down in bed* by a foot-board secured to the end of the bed with a cord, a small pillow being provided for the feet to rest against; or a folded sheet, against which the feet may rest, may be tied about the bed or fastened at the sides; or a pillow may be placed beneath the patient's knees. To bring a helpless patient back to the pillows after he has slipped down, flex his knees, grasp him under the shoulders with one arm and under the thighs with the other, then lift up as you direct him to press down firmly with his feet. If two nurses are available this can be accomplished better and more easily, with less disturbance to the patient. One nurse places one arm under the head and shoulders and the other under the small of the back, while the second places one hand under the small of the back and the

other under the thighs, one nurse being preferably on each side of the bed.

If it is desirable to *turn a patient in bed* always turn him toward you. Place one hand on the far shoulder and the other on the far hip and draw him gently toward you. Frequent turning is a comfort to most patients and aids much in preventing bedsores.

To move a patient from the bed to a chair, raise him to a sitting posture on the side of the bed, place one arm about his shoulders and have him place one arm about your waist (the free hand of each grasping that of the other in front), and thus support him to the chair, being careful not to strain him, or to jar him when he is placed in the chair. If he can give no assistance, two nurses will be necessary, unless he is light enough for one to carry. Prepare the chair, which should be high enough at back and sides to support the head and the arms, by placing one pillow in the seat and another lengthwise at the back. Over the pillows place a warm blanket diagonally, with enough of its lower corners projecting beyond the chair to cover the patient's feet comfortably. The rest of the blanket is also wrapped well around him. He will need the additional protection of warm stockings, slippers and a dressing-gown and may also require warm underwear. Half an hour will be long enough for him to remain in the chair the first two or three times, and the nurse should observe carefully that signs of fatigue do not develop before this.

Often *the weight of the bedclothes* is uncomfortable, especially to the patient's feet. An ingenious person may easily devise some arrangement to elevate them and thus relieve the pressure. A simple plan is to use a fairly sturdy box with the two sides knocked out. The box should be thoroughly cleaned before being brought into the room.

To change a nightdress, bring the patient's knees up, draw the gown up and over the knees and above the hips (as the patient raises them), then pull it around the neck. Now bend one arm and, removing the sleeve, carry the gown over the head and off the other arm. It is best to have the fresh gown on the bed and to place the first free arm in its sleeve immediately upon removing the soiled one, then put the other arm through the other sleeve as this arm is removed from the

Patient
Moved From
Bed to Chair

Changing
Night Dress

old garment. The gown is now drawn down to the hips, the knees are flexed and the gown brought down below the hips and the legs (the patient again raising them), then straightened out. When placing the arm fold up the sleeve, and, grasping the patient's hand, draw it through, keeping the fingers from catching in the folds. If one arm is injured, remove the gown from it *last* and put it into the sleeve of the fresh garment *first*. If the patient wears two garments, place one within the other and put on as one garment.

The arrangement of pillows means much to the comfort of the patient. They are used particularly for the support of the head, neck and shoulders, the arms and elbows and the small of the back. By placing a soft pillow at the small of the back and several (as many as needed) behind, a patient may be raised partially and made comfortable. Often a patient is more comfortable when on the back with no pillow for the head, but generally a pillow is preferred. This should not be large enough to force the chin to the chest.

Pillow
Arrange-
ment

When lying on the side a pillow should generally be used, but it should not be large enough appreciably to change the normal position of the neck or the shoulders. A comfortable arrangement is that of one pillow placed well down under the shoulder-blades, with a second one of good size supporting the head and the neck but also coming as far down as the shoulder-blades.

For the *helpless patient* several small pillows and pads will come in conveniently, to place here and there for the relief of pressure and aching muscles. A small rubber bag one-half or two-thirds full of cold water gives a grateful relief in case of burning and aching heels. In case of a patient confined to bed for long periods rubber rings partially filled with air give much relief to the hips and the end of the spine. In paralysis an air- or a water-mattress is excellent for the prevention of bedsores.

THE DAILY ROUTINE.—In the home where the nurse is the mother, with many other duties to perform, it is unlikely that any special routine will be adopted. But the following order is logical and should be followed when possible. If records of temperature, pulse and respiration are desired, these should be taken the first thing in the morning. The

patient's personal toilet then should be attended to—face and hands washed, teeth brushed or mouth rinsed, hair somewhat tidied and bed smoothed. An hour or so after breakfast the enema (if ordered daily) should be given, followed by the bath; the hair should be combed, the teeth brushed and such changes as necessary made in bedding and body clothing. The room should then be cleaned and put in order.

If the patient is allowed to be up, he may be taken into another room and the sick-room aired thoroughly during the cleaning and bed-making, the bed coverings beings removed and the mattress turned. The bedpan should be used regularly unless there are conditions necessitating irregular use. If there is no bladder irritability or weakness, it may be used regularly at ten A.M., four and ten P.M., and four A.M.

Temperature, Pulse, and Respiration. In health these bear a certain relation to one another; hence pronounced variations in one will be accompanied by variations in the others. Yet a person may have abnormal health and still show no abnormalities of temperature, pulse or respiration. The normal temperature of the human body is 98.6 degrees, though occasionally an individual, apparently normal, may register as low as 97.5 or even as high as 99 degrees. When the temperature is above or below these points it should be considered abnormal. Even these temperatures are usually abnormal.

The normal temperature may be higher toward evening, then gradually drop to a lower point at around 2 A.M., rising again to reach the usual point of 98.6 degrees between five to six A.M. This night variation is somewhat greater in children and in the aged than in adults. Mouth temperature is always from three-fourths to one degree higher than that of the axilla (armpit), yet half a degree less than that taken in the rectum. When the hands are cold, as when dipped in cold water or exposed to the cold weather, the temperature in the axilla may show subnormal while the mouth and rectal temperatures will be normal. Subnormal temperatures are, ordinarily, below 98 degrees. Elevated temperatures are above 99. Life is possible with temperatures between 95 and 109 degrees, though usually when either temperature is reached a fatal condition exists.

The temperatures recognized medically are: temperature

of collapse, 95 to 97 degrees; subnormal temperature, 97 to 98; normal temperature, 98.6 (with slight variations); subfebrile temperature, 99.5 to 100.5; moderate fever, 100.5 to 103; high fever (pyrexia), 103 to 105; hyperpyrexia, above 105 degrees.

The thermometer used to take the temperature should be accurate and clearly indexed (marked). The length of time for full registration varies according to the place where the thermometer is used; but from two to three minutes should be allowed at any place. The one-minute thermometers are good, but sometimes inaccurate. To insure accuracy they should be kept in place for two minutes.

Taking the temperature is usually done, for obvious reasons, *in the mouth*. The thermometer should be placed under the tongue, the lips being kept closed over it, the patient breathing through the nose. The lips should be moistened, if dry. The temperature should not be taken immediately after a hot or a cold drink. Some other method must be used if for any reason the mouth cannot be kept closed, or for very dull,

Methods of
Taking
Tempera-
ture



When taking the temperature by mouth, the thermometer is placed beneath the tongue and allowed to remain for a period of two minutes.

unconscious or delirious patients who may bite the thermometer and break it; also for infants and young children.

In taking the temperature *in the armpit* this part should first be wiped dry of perspiration and the thermometer placed snugly in the hollow, the arm being then held close to the side with the elbow flexed and the arm resting on the opposite collar-bone. If there is marked perspiration or too much emaciation, some other method will be necessary. At night when the patient is sleeping this method may be used without disturbing him.

The *rectal temperature* is most accurate; but if the method is used a separate thermometer should be kept for the purpose and the rectum must be free from feces. The oiled thermometer bulb is inserted gently about one and one-half inches, and held to prevent it from being forced out or drawn in, as sometimes happens otherwise. In case there is a local inflammation this is not a good method, for the thermometer will register a temperature much higher than the general temperature, which is the one desired. For infants and small children it is the best method. In reporting temperature to a physician always state where the temperature was taken.

After use the thermometer should be cleansed with *cold* water; not that cold water is more effective, but that hot water will expand the mercury suddenly and break the instrument. If one is careful, however, to see that the water is only lukewarm, it will be better than cold. After washing, the instrument should be rubbed with alcohol, dried on a clean cloth and inserted immediately in its container.

Cleansing
the Ther-
mometer

The Pulse. The pulse of the average male is about seventy to the minute, but it varies in different individuals, going sometimes as low as sixty-five or as high as eighty. In women the pulse runs normally from seventy to eighty-four, eighty being the usual rate. In children the pulse is from ninety to one hundred and in infants and young children it may be from one hundred to one hundred and twenty or thirty.

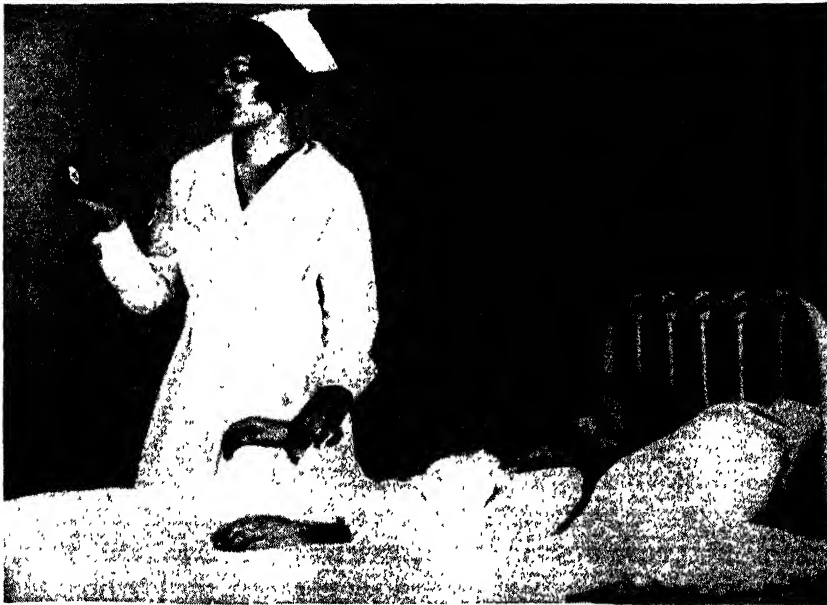
The normal pulse is recognized by its rhythm, responding to the equal force of the successive heartbeats and the normal size and compressibility of the artery. Food, exercise and excitement increase the frequency and strength of the pulse, but do not usually affect the rhythm. When standing the

pulse is four to eight beats faster than when sitting and when sitting three to eight beats faster than when reclining. A *frequent* pulse is one up to 110 or 115 a minute, a *rapid* pulse is from 115 to 140 a minute; a *racing* pulse is over 140 beats a minute. The effect of treatments, food, changing position (exertion) and other influences upon the pulse should be observed. Fevers always speed the pulse. A slow pulse is common in convalescence, especially after typhoid fever and influenza. It also occurs in brain tumors, meningitis and some drug poisonings.

The pulse ordinarily increases ten beats a minute for each degree of elevation in the temperature above normal. A pulse that is higher than the temperature usually indicates a weak heart, the weakness usually being in proportion to the deviation from the normal ratio of the pulse to the fever.

Taking the pulse is not difficult, but interpreting the difference in pulse is one of the most difficult duties the student nurse must learn. Usually the most sensitive finger is used

Importance
of the Pulse



In taking the pulse, two fingers are placed upon the radial artery in the wrist beside the tendon leading to the thumb. The pulsations are counted to determine the number of heart beats per minute. A full minute count is most accurate, but this should be divided in quarter minutes, in case of irregularity.

for taking the pulse, this generally being the long one. The ball of the finger is placed upon the thumb side of the wrist in the depression between the central cords and the bone forming the edge of the wrist. By pressing here gently and then holding the finger still (the patient's hand and arm being perfectly quiet also) one can feel the pulse waves. A watch with second hand should be used to count the beats. One may count a whole minute, or only a half or a quarter minute, doubling or quadrupling the count, respectively, to get the minute rate. It is usually better to count a full minute, as there may be variations in the shorter counts.

The Respiration rate varies according to the age and the sex, but there is less difference between men and women than in the case of the pulse-rate. Sixteen to eighteen is the average number of respirations a minute for men, eighteen to twenty for women, and twenty to twenty-four for children. In *counting* the respiration the two parts of each breath are to be counted as one breath, of course—that is, the expansion and contraction of the chest constitute a breath. It is better to count the expansions and to do so when the patient is unaware of what you are doing, else there is likely to be an unconscious variation that will be misleading.

Normally there are four pulse beats to one breath, but this ratio may normally vary to a slight extent and in illness there may be a marked variation. In counting and noting the respiration one should observe the frequency; regularity or irregularity; whether deep or shallow; whether the two sides of the chest expand equally or asymmetrically; and whether the movements are thoracic or abdominal.

TO USE THE BEDPAN.—First warm the bedpan. Turn the bedclothes back a little and have the patient flex the knees and raise the hips, then draw the gown above the hips and put the bedpan in position. If the patient is unable to raise the hips, raise these with both hands and hold with one hand while inserting the bedpan with the other. *To remove the bedpan* reverse the order of the above, covering the pan before removing it from the bed. The patient should be turned to one side and the parts washed before drawing down the gown and adjusting the bedclothes. With thin patients some padding should be used over the edges of the bedpan, or a rubber ring

Breathing
Rates

How to Use
the Bedpan

partly filled with air may be used. It also gives much comfort to have a small pillow under the small of the back with its end over the edge of the bedpan.

TO PREPARE A PATIENT FOR THE NIGHT.—Unless too ill to do so, the patient will rest better if he sits up in a chair for a few minutes before retiring. While he is sitting up the bed may be changed or adjusted as necessary and crumbs may be brushed out. If the patient is not to sit up the bed should be arranged before retiring time. If the patient remains in bed, remove enough of the pillows to get the head in good position for bathing, turn down the spread, place a small towel under the chin, and wash and dry the face. Place the wash-basin on a towel on one side of the bed and wash the hand on that side with soap and water, the patient allowing the hand to remain in the water a few minutes, then remove the basin, dry the hand, and do the same with the other hand. Replace the towel under the chin and have the patient cleanse the mouth and the teeth. Brush the hair. The bedpan now should be used, the external genitals of a female patient being washed from a basin specially for the purpose, the parts being dried with cotton or gauze. The patient is now turned to one side and all crumbs brushed from the nightgown and the bed, while all sheets are loosened, retightened and smoothed.

**Preparing
a Patient
for Night**

The back and the hips should now be rubbed, first, preferably, with circular movements and then with long strokes down the spine. The same procedure may be used from the other side, though with a weak patient it is better to do all from one side. Now change the nightgown if necessary; in any case adjust it comfortably. Adjust the upper bedclothes, preferably by first lowering them (all but the top sheet) to the foot of the bed. In replacing them see that they are loose enough over the feet to be comfortable, or put in the appliance at hand for keeping them from the feet. Freshen or change the pillows. A small pillow under the small of the back will give added comfort, or, if the patient sleeps on the side, under the abdomen.

A glass of water may be given, or a small pitcher of water and a glass placed on the night table within reach. Place the call signal within reach. The light should then be adjusted and arranged so the patient may turn it on if required. See

that there are no sources of noise. Small wedges may be placed in windows and doors to prevent this, or door noises may be prevented by tying a cloth from the inner to the outer knob of each door. An extra cover should be tucked in at the foot of the bed and so arranged that the patient may reach down and draw it up toward morning if needed. As a final night duty open the windows, and adjust a screen to keep off drafts or light streaks.

BATHS.—In the section on *Water and Health* (Vol. VI, Sec. 2.) practically every bath that a bed patient will require has been described, together with directions for giving each. Hence only a few directions need be given here.

All persons having the care of the sick should know how to give a cleansing bath, for all bed patients should receive such a bath daily, to cleanse the skin of normal waste products and, often, of the more injurious ones produced by the disease. The best time for giving such a bath is in the morning, or between the evening meal and retiring time, though baths are often given while preparing the patient for the night, and also during the afternoon.

Time for
Patient's
Bath

During sickness there should usually be an even longer time between meals and baths than ordinarily, especially if there is any digestive trouble or disturbances in the abdomen. Never less than an hour should elapse after a bath before a meal, or after a meal before a bath. An hour and a half to two hours will usually be better. The room in which the bath is given should be warmer than usual. Either the windows should be closed or screens or high-backed chairs placed to prevent drafts. In summer, as a rule, no additional heat is necessary. Everything required should be in readiness before the bath is begun. If any special bath—that is, for a special purpose—is to be given, it is usually better that the physician direct it, or fully describe the method, though those who have studied the subject should be able to give special baths without difficulty.

GIVING A BED-BATH.—One should have ready a large basin (or a foot-tub), a smaller basin, a slop-jar, a large pitcher, a face towel, two wash-cloths (one for the face and neck and the other for the body), two or three bath towels, two small blankets, preferably old ones, soap, powder, alcohol,

and necessary bed and body linen, with, perhaps, comb and brush, nail-brush, nail-file and scissors. The larger basin contains hot water, say 104 to 106 degrees. The pitcher also contains hot water at a somewhat higher temperature. During the bath some of the water is emptied from time to time into a convenient vessel and replaced by water from the pitcher to maintain a fairly uniform temperature. The smaller basin contains cold water, used to cool the hot water as may prove necessary.

Loosen the bedding and draw the patient to the side of the bed most convenient to work from. Remove the pillows entirely and place a soft bath towel under head, neck and shoulders. Lay one blanket in folds upon the patient's chest and draw it down over his body, while carrying the top covers to the foot of the bed. Roll the second blanket close to the patient's side and draw it under him. Remove the nightgown, the patient being under cover and between the two blankets.

Wash the face and dry, then the neck and ears, using care not to drip water on the patient. Bathe the arms, hands, armpits, chest and abdomen in this order, drying and covering each part before proceeding to the next. The patient's hand may be placed in the water and remain for a few moments, the nails being cleansed with the nail-brush and perhaps an orange stick, but do not use the nail-file until after the bath is completed. When the arms are bathed and dried wrap them in folds of the lower blanket. Before bathing the abdomen add additional water to raise the bath temperature, as this region usually is sensitive to cold.

**Bathing a
Helpless
Patient**

Now turn the patient to one side and bathe and dry the back of the trunk, then the thighs to the middle and dry, repeating on the other side. With the patient again on the back one leg is first uncovered, bathed and dried, then the other. The feet may be placed in the basin when washing them and the legs. If a nail-brush is used it should not be the one used for the hands. In bathing the soles use firm strokes to prevent tickling. Carefully bathe the external genitals if they have not been bathed previous to the bath. With a male patient (unless helpless), the basin and cloth are placed in position for him and he bathes himself while the nurse is busied elsewhere or steps from the room.

2914 CARE OF TEETH AND HAIR

At each region follow the warm bath with a cool one before drying. If alcohol is used it should be rubbed on each part after the drying that follows the cool bath. Then a simple dusting powder may be applied if desired, especially to the back.

Upon completion of the bath and removal of the basin last used, first remove the under blanket and replace the gown. Then draw up and adjust the upper bedclothes, remove the upper cover blanket, and replace the pillows after shaking them.

Usually the *teeth and the mouth* should be cleansed after the face is bathed. The patient does this if possible, otherwise the nurse does it with gauze over a finger, or applicators with cotton tips. The patient rinses the mouth with mouth wash, expectorating in a special curved basin adjusted under the chin.

Cleansing
Patient's
Mouth



Inspection of throat, including tonsils. The patient's tongue is held down with spoon handle, the nurse standing at the side of patient in anticipation of possible gagging or coughing. Light, whether natural or artificial, should be sufficient to insure a thorough and complete examination.

The proper *care of the hair* is necessary for the comfort of the patient. It may be taken care of after teeth and mouth are cleansed, or after the bath is completed. If the hair is long it should be parted from the forehead to the nape of the neck and braided on each side just back of the ear, first be-

ing brushed carefully and combed gently. Bobbed hair requires merely brushing and combing. If the hair is neglected for only a few days it becomes tangled and is difficult to straighten. If the patient dislikes to have the hair braided, it may be rolled into a bunch and secured on top of the head. The hair and the scalp should be washed weekly, with the patient lying across the bed if possible.

Tub baths are serviceable for cleanliness, to increase or decrease temperature, to soothe the nerves, or to relax the muscles. They may be used for helpless patients by having the bath ready in a room at suitable temperature and carrying him to and from the bath, but a bed-bath is usually better for such patients. A less helpless patient may require assistance in going to, returning from, getting into and out of, the bath. Usually the nurse should assist during the bath by giving friction and applying the soap, perhaps the flesh-brush and in drying. If the patient takes his own bath the nurse should be within call.

Temperature-Reducing Baths may be prescribed by the physician or may be considered necessary by those caring for patients themselves according to the teachings of physical culture. Either cold or cool water or alcohol may be used, preferably water. The patient and the bed are prepared as for the bath described above, except that a rubber sheet is placed on the bed under the under sheet and a cold turban, frequently renewed, is applied to the head. Constant friction is given during the bath and the water, instead of being wiped off, is allowed to evaporate, to augment the cooling effect. Tender spots and the abdomen should not be vigorously rubbed. Usually eight to ten minutes is devoted to sponging the front of the body and an equal time to the back, with the patient lying on one side. In completing the bath it is usually beneficial to place a hot-water bottle at the feet, and to leave the additional blanket, removing both (usually) after about half an hour, then replacing the gown. At this time the temperature, pulse and respiration should be taken and recorded.

**Tempera-
ture-Reduc-
ing Baths**

Foot-baths often are beneficial for relieving congestion elsewhere, for headaches and colds and to stimulate circulation of the lower extremities. The bath may be given to a

**Foot-Baths
Relieve
Congestion**

bed patient by turning back the covers to the knees and putting the feet gently into a foot-tub half full of water at the right temperature, the tub being set on an extra folded blanket or a rubber cloth (or both) in the bed. The covers should be drawn over feet and tub after the feet are in the water. Additional water may be added to the tub to raise or lower the temperature as required, the patient's sensations necessarily being considered as far as possible.

To avoid burning the patient when adding hot water to maintain the bath heat pour it in at the side of the tub as far from the feet as possible. Usually the bath continues for twenty minutes or so, after which the feet may be given a quick cool sponge (or not, according to conditions), then vigorously rubbed until dry. To secure the best effects from the bath, the feet, after drying in a blanket, should be placed with a hot-water bottle near and the patient should be kept well covered. A cold compress may be applied to the head if the patient perspires freely.

If the therapeutic foot-bath is not required, the feet should be cared for by special baths. Two or three times a week they should be soaked in warm water and every day they should, of course, be washed. For dry skin and nails a little vaseline or oil may be rubbed in daily. If the feet perspire too freely, whether or not they become tender and develop an unpleasant odor, they should be bathed with soap and water each day and then bathed in salt water, followed by an alcohol rub and powder if desired.

Rubbing Not
Massaging

RUBBING THE PATIENT.—Often nothing is quite so soothing to a bedfast patient as a general rubbing. It relieves tensions, quiets the nerves, improves the circulation, relaxes muscles and tends to improve skin health. When giving this treatment it is usually better to use a little oil or powder on the hands. The entire hand should be used, giving equal pressure with all parts of it, as this is not a massage treatment. This rubbing is a different procedure.

In rubbing the forehead rub outward from the middle with the fingers of the two hands at the same time. Over the eyelids use the tips of the fingers, rubbing outward with light pressure. The hands may travel from the forehead to the sides of the head, back of the ears and down the neck. For

the arm, hold the arm up by the wrist with one hand and rub full length with the other. For the lower extremities face the foot of the bed and draw the hands upward toward and to the thighs, one leg at a time.

If the abdomen is to be rubbed, as often is done in case of constipation, stroke upward on the right side, across the upper abdomen and down on the left side. The back is rubbed with the patient on the side of the bed facing the nurse, rubbing first being lengthwise of the spine and then with curving, upward-outward strokes to cover progressively the entire spine and the back from the hips to the shoulders. Circular movements, sliding the skin over the underlying muscles, are then made about the shoulders and lower part of the back. Often the patient lies face down for this rub.

ENEMAS.—During normal life bowel waste may be kept moving by exercise and adjustment of the diet. But during sickness, because of the complete inactivity and the more restricted and less bulky diet, it is usually necessary to give enemas. Otherwise absorption of poisonous substances produced in this waste will retard the progress of cure and may cause various additional disturbances. Nurses are trained to give various kinds of enemas, for different effects: not only simple cleansing enemas, but laxative, cathartic, nutritive, stimulating, sedative, astringent, antiseptic, etc. But the physical culturist will not use any but the simple cleansing enema and, perhaps, the mild laxative enema. (See also under *Water and Health*, Vol. VI, Sec. 2.)

Enemas

In giving the enema have the equipment ready and conveniently arranged. The articles required are: a fountain syringe or enameled irrigating can, with tubing, clamp and nozzle, rubber sheet, towels, vaseline, warmed bedpan or commode (slop-jar), toilet paper, pitcher containing two quarts of water at the desired temperature (about 95 degrees F.), and a small pitcher or vessel containing warm water for cleansing. Remove all pillows except, if the patient especially desires it, a small one, and all covers except one blanket and the sheet. Place the rubber sheet, covered with a bath towel, under the patient turned to the left side with the knees flexed, the right somewhat more than the left. If necessary, however, the patient may remain on the back; and in obstinate cases of

Equipment
for Enema

2918 POSITION FOR THE ENEMA

constipation the knee-chest position may be used if the strength of the patient will permit. The enema should be administered under cover if possible.

How to Give an Enema

Place the water in the reservoir of the enema outfit, hold the nozzle over the bedpan, open the clamp (or stop-cock) to allow the air to escape and to warm the tube. Close it when the water appears at the nozzle. Apply a small amount of vaseline (or oil) to the nozzle. Suspend the bag or can two feet above the patient if it is not to be held. Gently insert the nozzle into the rectum, in a slightly forward direction. Withdraw a little distance if there is obstruction, inserting again. forcible insertion is always to be avoided. The nozzle should enter about three inches. Open the clamp and allow the water to flow gently. If the patient complains of pains, pinch the tube, close the clamp, or lower the bag, increasing the flow again as the pain subsides. For best results the enema should be retained for five or ten minutes. A folded towel pressed against the bowel outlet will reduce the desire to expel before this time.

If the bedpan is to be used turn the patient on the back, bend the knees, assist in elevating the hips and place the pan in position. Turn up the end of the towel which has been placed on the rubber sheet over the edge of the bedpan as an added precaution against soiling the bed and draw up the covers. On removing the bedpan put in its place a second warmed bedpan, irrigate the anus (first irrigating the vulva in a female patient), remove the pan and dry thoroughly; then remove the towel and rubber sheet. Or the anus and vulva may be bathed from a basin with a special cloth.

If a commode is to be used instead of the bedpan have it near the bed, put on the patient's stockings, slippers and wrapper and assist to the commode. Cover the legs, place a low stool under the feet and place in front of the patient a low chair for use in case of faintness. Place a blanket about the patient if necessary for additional warmth.

Enemas for Children

In giving *enemas to children* a flexible nozzle should be used if the child is restless, otherwise the smallest hard-rubber nozzle. For infants the bulb syringe is best. Children usually require from half a pint to one pint of water, infants usually not over two ounces. Be sure to expel all air from the tube

when the fountain syringe is used and see that the bulb is completely filled with water when that is used; otherwise the entrance of air into the rectum will cause pain. The same procedure as given above may be used for older children, but infants and small children are held on the lap.

The best time to give an enema is in the morning before beginning the toilet, or before preparing the patient for the night. If it is not effective it may be repeated within half an hour, or immediately if the patient is not weak.

Laxative enemas sometimes are necessary. The best laxative enema is one of olive oil. Six ounces of oil at a temperature of 95 degrees may be used, being injected by means of a bulb or hard-rubber syringe, or a funnel and soft rectal tube. Usually it is better to follow the oil enema within half an hour with a simple water enema, or with an enema of soapsuds, using pure Castile soap and removing the floating suds. If a slightly more *stimulating enema* is desired, half an ounce of glycerin may be added to an equal amount of warm water, injecting it as advised for the oil enema. We do not advise this enema for children or infants, but the oil enema is satisfactory for all ages.

The Laxative
Enema

SPECIAL CARE OF FEMALE PATIENTS.—During illness, even when the menstruation ordinarily is normal, there is often an aggravation of the symptoms of the illness during menstruation. Depression is common and the appetite is usually less keen or further reduced if it has been deficient. If the appetite is diminished or finicky, reduce the diet and give mainly the blood-cleansing and alkalinizing vegetables and fruits. If the bowels are not functioning normally (and most likely they will not be), give neutral enemas daily. There need be no omission of the daily general bath; but if this has been at any temperature other than neutral or tepid, or barely below the body temperature, it would be better to give it at one of these temperatures. The hot or the cold or decidedly cool bath during menstruation *in bedfast illness* may cause chilling or other more or less disagreeable symptoms.

Care of
Female
Patients

The patient should be kept quiet and free from worry. Glare from windows or lights should be especially prevented at this time and the patient should not be permitted to do much reading. If it does not have any tendency to produce

headaches, a little reading may be permitted. But since reading takes energy it is not advisable for a bedfast patient, unless chronically ill, to do any appreciable amount of it; else there will be retardation of progress. During convalescence the amount of reading permitted may increase according to the gain being made.

**Preparation
for Vaginal
Douche**

THE VAGINAL DOUCHE.—The purpose of this is to cleanse the surface of the vagina, or to apply heat internally. The ordinary fountain-syringe outfit or the porcelain irrigation (enema) can will be required; also a douche-pan or bedpan, sheet, towels and the solution to be injected. The nozzle should be the hard-rubber or glass, longer than the enema nozzle and with holes in the sides. It should be sterilized by a proper solution of lysol or other antiseptic. From two to eight quarts of water are used, according to need and purpose, usually at 105 to 110 or 112 degrees F., also depending upon the need and purpose. Nothing but plain boiled water (cooled to the required temperature), or salt or boracic-acid solution, should be used, unless especially prescribed by the physician.

**Giving the
Douche**

For the douche the patient is placed on the back, with a thin pillow or none at all, the knees flexed. Lower the top covers to the feet, covering the patient with sheet or bath blanket. Raise the hips and place the douche-pan beneath, putting a folded bath towel on the back edge of the pan to make it more comfortable. The bag containing the solution should be secured twenty to twenty-four inches above the patient. The external parts should be washed if there is any discharge.

The hands now should be well washed with hot water and soap, rinsed and dried on a thoroughly clean towel. The sterile, lubricated nozzle is held over the douche-pan and the water allowed to flow gently until the nozzle is warm. Hold the nozzle near the external parts, then insert it into the vagina, somewhat downward and backward, about four inches and allow the water to flow in a slow steady stream. Turn the nozzle round and round so that all parts of the vagina will be cleansed.

Remove the tube before the solution is entirely exhausted, first closing the stop-cock. Leave the patient on the pan for a few moments, then dry the vulva with cotton or gauze. Re-

move the pan carefully so as not to spill any of the contents, dry the patient's back, pull down the gown, draw up the covers, arrange the pillows and let her rest.

FOMENTATIONS, COMPRESSES, PACKS, ETC.—In the section on *Water and Health* (Vol. VI, Sec. 2.) are directions for applying these treatments. There is practically no difference in applying them to a bedfast patient, as they have to be given in any case with the patient recumbent. In all cases care must be taken to make as little exposure of the patient as possible, usually all parts but those to which the application is made being covered with sheet or blanket or entire upper bedclothes. In summer, or when the room temperature is at summer heat, and with a member of the family, there need not be the extreme care to keep the patient fully covered, or to prevent all exposure of the body, that should be taken under other conditions.

Always in giving external heat to a patient it is important to avoid a too high degree. Often the patient's sensation is dulled, sometimes completely lost; and often the condition of the skin, circulation and other tissues and functions are decidedly defective or the patient may be unconscious. In these cases the patient cannot determine what is a suitable temperature and sometimes a seemingly suitable one causes some degree of disturbance. Blistering of the patient is inexcusable and may lead to more or less serious consequences.

A fomentation wringer is good to have at hand in case fomentations are required. One may be made by taking a piece of coarse toweling about eighteen inches long, making a two-inch hem at each end, then running a thin round stick somewhat longer than the towel is wide through each hem. The fomentation is placed on the toweling and wrung by twisting the sticks in opposite directions. Another excellent wringer may be made by tacking circularly around the end of a round stick a piece of heavy ticking or duck, then similarly attaching the other end to another stick, having the duck or ticking between the sticks at least a foot long. The fomentation cloths are placed in the opening in the wringer cloth and the sticks turned in opposite directions. If nothing better is available, a towel may be used as a wringer, without the sticks.

Many people believe in the efficacy of the *turpentine stupe*

Cautions in
Applying Ex-
ternal Heat

as a counterirritant. The turpentine itself has no medicinal effect when used in this way, but it does increase the effect of a fomentation upon the skin. If its use is desired, apply as follows: Have the fomentation material ready, also a teaspoonful of turpentine mixed with two teaspoonfuls of olive oil. Stir this mixture and apply with gauze or cotton to the part to be treated, then apply the fomentation in the ordinary manner.

BED SORES.—When a patient is confined to bed for a considerable time, especially if helpless or poorly nourished, sores are likely to develop upon those parts exposed to pressure. These pressure sores are usually called bedsores. Paralytics, if confined to bed, are almost certain to develop them. The usual locations are the lower end of the spine, shoulder-blades, elbows, inner surfaces of the knees, ankles, heels, toes and the back of the neck. Bedsores are difficult to heal, because of the continuation of the conditions that bring them on. Hence in caring for the bedfast patient efforts should be made to prevent these developments if possible—and it usually is.

**How to Avoid
Bedsores**

When bedsores are developing there is usually a slight burning or stinging of the part, especially when alcohol is rubbed over it. This indicates that the skin is nearly broken. When breaking occurs the use of alcohol should be discontinued and oxide of zinc ointment or stearate of zinc powder applied instead. Bathing in fairly cool salt water is also excellent to strengthen the skin, even though temporarily it may cause smarting. Immediately remove all pressure from the part, and do any rubbing toward the affected area, not away from it, as the latter will have a tendency to tear the skin if it is weak.

It is a wise precaution to ask the patient occasionally if he experiences any stinging during the alcohol rub or at other times, lest he be one of the stoics who think it is the duty of a sick person to put up with pain or discomfort. If the parts subjected to pressure are bathed with cool water twice a day and then dried thoroughly and rubbed well with a little oil, bedsores, except in some abnormal cases, will usually be prevented. Rubbing with alcohol after this treatment is beneficial also, because of the "toughening" influence of the alcohol. So also is salt used in the bath that precedes the oil rub.

Talcum applied after the treatment will be of additional value.

At the least suggestion of redness of any part exposed to pressure, before the patient himself makes any complaint of burning or stinging at such points, *remove the pressure from the part*. The simplest way to do this is to turn the patient. If this cannot be done it will be necessary to use cushions, or rings of rubber or cotton, or air-pillows, or an air- or a water-mattress. Pillows or cotton rings must be made to fit about so no pressure will come upon the part but all upon the normal tissue surrounding it.

Hot-water bottles partly filled with air make good pillows for small areas, though an open ring is better. The latter is almost necessary for the back, especially the lower end. If the position on the ring (which should be only partly filled with air) is uncomfortable, the body may be supported elsewhere with pillows, as a pillow under the small of the back when the ring is at the end of the spine. Rubber rings and cushions should be slipped into pillow-cases. Cotton rings are serviceable when the air-cushions are not obtainable. They should be carefully made and covered with bandages, then perhaps slipped into a pillow-case, though not necessarily. In making these rings the cotton (cotton batting being cheap and satisfactory) should be rolled into a suitable ring and then wrapped about several times with gauze, leaving a hole in the center so the finished ring resembles in shape a doughnut or a life-preserver. These are so inexpensive that they may be renewed often. Rings may also be made of strong material and *partly* filled with bran or fine sawdust. If filled full they are uncomfortable.

Air-Pillows
and Pads

The treatment of a bedsore is the same as that for any other similar sore or wound. Simple removal of the pressure will do considerable, but more than this may be necessary. Usually the physician will take charge of the treatment. When the sores are on the hips or the lower end of the spine special care is necessary to prevent fecal matter or urine from coming in contact with them and possibly infecting them.

Care of
Pressure
Sores

One should not forget that a person continually confined to a chair may also develop pressure sores. In fact, it is sometimes necessary to keep a patient ordinarily spending hours daily in a chair in bed until there has been complete or

considerable healing of sores about the buttocks. From resting upon the arms of the chair the elbows likewise may develop sores, and if the chair back is not comfortably padded such sores may develop on the shoulder-blades. All these are better prevented than corrected, by suitable rings or other padding. In any case, air-pillows and rings give great comfort to the patient.

FEEDING THE PATIENT.—The helpless and semi-helpless patient will have to be fed by the nurse. The nature of the food, the quantity and frequency of feeding cannot be taken up here. It will all depend upon the patient's condition. Here merely the method of giving the food will be discussed.

The patient should be raised on pillows to a comfortable, suitable height and position, but the head should not be pressed too far forward. The shoulders should be well covered, but the arms free. The tray may be on a towel on the bed, or on a small table beside it. A good way is for the nurse to sit facing a table near the head of the bed, her feeding arm next to the patient. A napkin should be under the patient's chin. There should appear to be no haste on the part of the nurse, else the patient's digestion may be disturbed. The food is carried to the mouth slowly, carefully, then placed on the tongue, not merely to the lips.

Hot soups and broths should be given in small amounts at first until it is found that the temperature is correct. It should not be necessary to say that they should not be cooled by blowing upon them. Raise the spoon carefully so the fluid will not run down the mouth corners. Solid foods should be cut in small pieces and given slowly. Semi-solid and soft foods should be given by spoon.

If the patient can drink fluids they may be given in a glass (two-thirds full), or by an invalid's nursing cup (a spouted and partially covered cup), or through a glass tube from a glass or a cup. Even a clean rubber tube, with glass end for the mouth, may be used, or soda straws, if other conveniences are not available. A bent glass tube is best when the patient must recline while drinking. The cup or glass containing the fluid should be placed in the curve of the patient's arm in this case, to be easily reached. If the helpless patient is given fluid from a glass, the head should be raised by reaching one

hand under the pillow rather than under the head. A special tray with legs for use in bed is best when the patient can feed himself.

SPECIAL FOODS.—It might be well here to give a few suggestions regarding special foods often given to patients under varying conditions. The volume devoted to Foods and Diet covers in the main all the foods that will ever be required in building, maintaining and recovering health, but some simple modifications will be given here that may be useful in time of sickness.

The milk diet (described in detail in Volume II) probably will be given to the majority of patients after a period of fasting or other preparatory diet. But often patients cannot take milk without modification. Diverse variations are possible. The milk may be diluted with plain water, or with a small amount of lime water. Soda and vichy are often added, also, but we do not approve of either of these. When there is constipation, or an acid condition of the stomach, or a gastric ulcer, a teaspoonful of milk of magnesia may be added to each glass of milk. Predigested milk (peptonized) may be used. Rarely is it permissible to add a little salt to the milk. Removal of the cream frequently makes milk more digestible, without interfering appreciably with its nourishing qualities.

**Milk Diet
for the Sick**

Buttermilk can be taken by many people who cannot take sweet milk; but there are other forms of sour milk which are also highly beneficial. Creamery buttermilk is the same as soured milk, except that most dairies or milk companies use their own culture of souring germs, thus imparting characteristic flavors. Acidophilus and Bulgarian buttermilk are beneficial and appetizing. Mr. Macfadden's simple sumik will take the place of either of these when they are not obtainable. It is merely milk allowed to sour in an air-tight vessel until a solid curd is formed, then whipped to a creamy consistency.

Kumyss, Matsoon, Zoolak and other specially cultured milks may be used similarly, but some of these are decidedly acid and will not appeal to the majority of patients. All these so-called fermented milks are not only good food but aid in correcting and preventing intestinal putrefaction. Whey, the watery portion of milk after separation of the casein, is ex-

cellent when milk disagrees, or when protein is to be omitted from the diet or used in only small amounts. In whey are the sugar and the mineral elements and some of the vitamins. It is easily digested and has a slightly acid taste.

Milk with
Cereals

Milk soaked over cereals or bread, especially whole wheat bread or its toast, or bran, then strained, is valuable and appetizing. So also is milk diluted according to taste or needs with thin oatmeal gruel, or barley or rice water or gruel. Parched sweet corn, ground in a coffee mill or otherwise crushed and then soaked in milk, imparts a delightful flavor and some nourishing elements. Root vegetables may be made into a thin purée and added in small amounts to milk. Lemon or lime juice may be slowly stirred into milk until curds form. This mixture is easily digested because the curdling is already accomplished—as with other soured milks.

Ovaltine, malt products, malted milk, dry milk, condensed and evaporated milk and numerous other products may be used, either part of the time with additional milk, or to change the flavor and digestibility of sweet milk in certain cases. It should not be forgotten, however, that no milk preparation can surpass ordinary fresh milk, or freshly soured or cultured milk. Many people who cannot take milk at body temperature, or slightly cool, can take it with relish and digest it satisfactorily when given hot. Occasionally when warm milk is distasteful, cold (not iced) milk is appetizing.

It will be seen from the above that until one has tried numerous ways of preparing or altering its taste and nature, a patient cannot say that he cannot take milk. If it is indicated in the patient's condition, the chances are that it can be modified, by some of the methods mentioned, so it may be taken with satisfaction and benefit.

LIQUID DIET.—Often a "liquid diet" is prescribed. Unless the kind is specified there may be considerable opportunity for giving a diet not wholly agreeable and satisfactory. The following are among the foods usually prescribed on liquid diets:

Milk, ordinary or in one of its many modifications, including the sour milks, milk shake and junket, flavored if desired with lemon, vanilla or cocoa.

Broths, vegetable and cereal, chicken, beef, mutton and

clam are prescribed ordinarily, but except, perhaps, for clam broth, we do not recommend them.

Gruels of arrowroot, cornmeal, cracker, Wheaten, Farina, oatmeal and rice may be taken strained, but arrowroot and cracker gruel have little value.

Eggnog, egg-yolk in citrous fruit juice.

Fruit and berry juices—orange, grape, grapefruit, pineapple, apple, loganberry, blackberry.

Ginger ale in an occasional case.

SOFT DIET includes the foods mentioned above and also bread and butter; bread and milk; cereals, either dry in milk, or milk and cream well cooked; custard, soft and baked; eggs coddled, poached and soft-boiled; fruits stewed and in purées; milk pudding, milk soups, oyster stew and toast (prepared with cream, milk or water); many vegetables in purée form, and the broths of vegetables.

Eggs have been given to patients for "ages," it being presumed that because they are soft and more or less easily digested they are suitable for practically all forms of illness. As a matter of fact, it is better for the invalid to abstain from egg whites. The yolks provide every element and every vitamin required and hence are valuable, but many individuals cannot take this part of the egg. Such persons should leave the entire egg alone, for there is no virtue in the white. Oysters also should be avoided by the majority, though they are usually less likely than eggs to cause intestinal and other disturbances.

THE CONVALESCENT DIET will naturally depend upon the nature, duration and severity of the previous illness, the patient's inherent strength and recuperative powers, as well as age, sex, size, etc. But generally speaking all the foods so far listed may be used by convalescents from most diseases, as well as chicken and fish (moderately), oysters, baked potatoes, root vegetables other than potatoes, green vegetables and salads. A great many people doubtless will be on the milk diet during their convalescence, in which case other foods, except fruit juices, will not be used. If the patient is taking milk for half a day, with one meal in addition, the above foods, *except meat in any form and fish or other sea food*, may be taken at this meal.

"Soft" Diet

Diet for the
Convalescent

Tempting
the Appetite
Dangerous

TEMPTING THE APPETITE.—It being the duty of nurses to prepare foods and see that patients get them, a vicious practice not only encouraged but insisted upon by many physicians has developed. This is tempting the appetite when the patient has little or no desire for food. Thousands and hundreds of thousands of patients have doubtless been hurried, literally, into untimely graves and a great many more greatly retarded in their convalescence and recovery by this practice. With only a few exceptions lack of or reduced appetite indicates that the body not only does not need food but cannot utilize it. To feed under such circumstances is to add further to the enervation and toxemia—the underlying conditions responsible for the vast majority of illnesses.

It is perfectly proper to make food attractive and interesting to the patient. This may be done by varying the diet as much as the circumstances and the illness will permit. The manner of cooking or otherwise preparing may be varied, also, and the foods may be served in dainty, unexpected ways. The tray, the dishes, the linen all may be, in fact should be, arranged attractively. Flowers may be added to enhance the attractiveness of the whole and even the bread may be varied in cut and character, sometimes appearing as toast and sometimes in sticks, triangles and squares instead of slices. If a certain food that cannot be injurious is persistently craved it may be given, the amount depending upon its nature and the patient's condition. These things are all legitimate "appetite tempters," and aids to digestion.

But the practice of giving jellies and jams and preserves, or condiments, pickles or other vinegared products or of giving tidbits between meals or some alcoholic or other beverage before meals, even in minute quantities, or various other substances having no actual food value but producing their effect upon the appetite by unnatural stimulation—all these are to be condemned. The trained and the practical nurse nowadays are not so likely to give these things as is the family nurse—that is, some member of the family, especially the mother, through her misguided love. She is the chief culprit. Foods attractively served, with an agreeable aroma and flavor, plus honest appetite created by the body's genuine need for food, are all the appetizers any patient needs or should have.

ENTERTAINING THE PATIENT.—One important need of patients, whether acutely or chronically ill, is diversion. This helps to pass time and keep up the spirits. During severe illness there is such a depressed or abnormal condition of the body and the mind that attempts at diversion will meet with no response and will result in positive injury. But during convalescence, especially during protracted or chronic illness, diversions are definitely helpful. If such patients are allowed to make themselves useful, either in their own care or otherwise, they will feel less helpless than when waited on “hand and foot” and will gain more rapidly—provided, of course, these small things are within their capacity. Nothing is better for the mentality and morale than having the hands occupied at something that requires moderate mental concentration. Each patient will have to be treated in this matter according to his own peculiarities and conditions; but patient and nurse working together can usually devise some interesting and not only harmless but beneficial program.

Advantage
of Diversion

One must, of course, be careful not to allow a patient to overdo in anything undertaken. Normal convalescence is steady, even though, at times, it may be slow; but there should be no sliding back, no loss of improvement made. If the patient's small activities cause weariness there will be irritability and depression, hence discouragement. A mistake often made is to endeavor to entertain a patient, or keep him occupied, practically all his waking hours. There should be many hours every day when his time is his own, to relax and day-dream, to plan for the future, to sleep or to occupy himself in any other way he chooses.

There are times during acute illness when *visitors* cannot be allowed, even members of the immediate family. But when his condition will permit, visitors, bringing in some fresh contact with the outside world, may be of much benefit to the patient. But such visits must be refreshing, brightening and encouraging, comforting and reposeful, or they will tire and irritate the patient and retard his progress. A visitor is helpful if he or she is cheerful and does most of the entertaining without dominating the scene. The patient should not feel under any obligation to entertain the visitor. If any such effort is made the call will be detrimental.

**Undesirable
Visitors**

Patients must be protected from those who have even the least injurious effect, whether immediate or later. When visitors first are permitted and often throughout the period of convalescence, it will be better to restrict the number allowed in the sick-room at a time to one. Continually turning the head, or even the eyes, to observe two or three or more visitors is wearying in itself. When combined with having to hear different voices, one or more of which is likely to be harsh and strident, or unduly loud, with clashes of voices as various ones attempt to speak at the same time, the patient is certain to be exhausted and made nervous. One visitor, placed conveniently so the patient does not face the light in looking at him, will not physically tire or irritate him unless he is required to do too much talking. All sick-room calls should be short, and the intervals between them should be regulated according to the patient's condition and the effects of company.

**Reading to
Patients**

An excellent way to entertain patients is to read to them. However, care must be taken to read rather slowly, never loudly, but in a well modulated voice and distinctly, to face the patient and guard against reading too long at a time. Newspapers should not be allowed to rattle, and sensational news should be avoided. Select a good variety of general news, heeding as much as possible the patient's desires, unless these run toward the sensational. Magazine articles and stories and wholesome books also may be read, if the patient is interested in them, and the chances are that he will be. Avoid all reading material in which there is reference to sickness or abnormality.

Get out frequently and gather some new interests to bring back to the sick-room, but keep away from gossip. Elderly patients, as a rule, are in even greater need of entertainment or light occupation than younger people during illness, for they are inclined to feel neglect keenly and also to feel that the neglect is because they are "unnecessary anyway." This need is often not taken into consideration sufficiently.

**Good Games
for One or
Two Persons**

Some things that grown or fairly mature patients may do while convalescing may be mentioned here. Games for two, such as dominoes, checkers and various card games, especially cribbage, are excellent if not too exciting. Solitaire may be played by the patient himself part of the time. "Cut-out" and

other puzzles may be worked with. If he has a collection of snapshot pictures these may be put into an album and captioned; or a scrap book may be filled with any material of interest. Drawing and coloring or painting; wood or leather carving; whittling blocks and wood for little cottages, log cabins, bird-houses, or toys; clay modeling; tatting, knitting, crocheting, basket-weaving, picture framing; making calendars or small lamp-shades, trimming hats, making ribbon flowers or articles from crêpe paper or sealing wax, etc., etc.—all these are excellent.

Working with potted flowers, watering and light weeding, planting seeds and other light work will be possible later, also perhaps light bench work for men patients. The interest must be maintained, while always guarding against fatigue. Tension during any pastime must not be allowed; the work must be changed, or, if necessary, rest must be insisted upon.

Walking should be encouraged, within safe limits, for the benefit of the exercise, fresh air, sunlight and the mental diversion provided by a change of scene. Automobiling is excellent, also, but must not be long continued or tiresome, or without adequate protection against wind and cold. Special cushions will often be necessary at first. If walking is permitted at all, the patient may be allowed out of the car for a while somewhere along the way for rest through change of position and for the exercise. More strenuous activities will come later, their nature and amount depending upon the progress, sex, age and natural strength of the individual.

**Walks and
Drives for
the Patient**

NURSING CHILDREN.—The hygiene and care of infants and children are discussed in Volume IV (Secs. 4 and 5.), so need not be considered here. It should be kept in mind that the conditions of life during infancy and childhood are different from those of adults or persons close to maturity and some features of nursing will need to be changed for the immature patients. Except in one's immediate family, a nurse who may prove satisfactory for adults may not be at all suited for the care of children. In some measure, the present high mortality of infants and small children is doubtless due to poor nursing. When the nurse is the mother she is tempted to yield to the desire to give children things they should not have, or to take them in her arms, possibly to rock and weary them.

Firmness
Necessary

Tact and an abundance of patience are necessary in nursing children. There must be a genuine sympathy, but it should be directed toward the ultimate good of the patient rather than to the gratification of immediate transient desires. Hence judicious firmness will be necessary. A capacity for observation is necessary, also; for especially in the case of infants and young children no information will be given consciously by the patient regarding the nature of various troubles that may arise. That is, the patients cannot interpret and explain their feelings; therefore the nurse will need to observe signs of change or progress.

The movement of the hand to some part of the body, the character of the cry, the position of the body, the response to various influences (light, sound, food, etc.)—the nurse may use all for the purpose of obtaining the information she needs. The control of the voice is even more important than in nursing adults. The child is sensitive to the voice and will be influenced by inflections and the slightest evidence of irritation or excitement. The strange nurse should take charge gradually, the mother or family nurse giving way little by little, so the child will not be thrust suddenly into a strange atmosphere and so the nurse may have the child's confidence.

The various diseases and disorders of childhood are taken up in Section 7 of this volume and in Vol. VIII in regular alphabetical order with those of adults; hence they need not be specially considered here.

Importance
of Restraint

Often it is necessary to *restrain a child*, either for examination or to keep it from disturbing dressings, or scratching some infected or other place that should not be touched. For the latter purpose mittens may be put on the hands, with tapes to attach to the sides of the bed, holding them loosely yet so that the part to be protected cannot be reached. Or the mittens may be fastened with safety-pins to a suitable part of the undershirt or elsewhere. A sheet may be folded cornerwise under the child, brought about the body and pinned, so as to confine the arms.

In the case of small children a mailing, or other similar cylindrical tube, may be placed over the arm (over clothing) and attached by tapes. A splint, well padded, may be secured along the outer side of the arm, attached above and

below the elbow and, in case of a strong child, at the elbow also. The arm may then be moved at the shoulder but not bent at the elbow.

To restrain for examination, an excellent method is to place the child on the lap, pass your arms under the little arms and then hold the forehead with the hands. Another fully satisfactory method is to hold the child on the lap, pass one arm in front so as to secure both arms, then use the other hand to restrain the head. In both methods the child, facing front with the nurse, is facing the doctor. If at all possible, however, the confidence of the patient should be obtained first so there will be a minimum of fright or of struggling.

To secure quiet and as a safeguard in the event of the development of an infectious disease, isolate children if there is even moderate fever. If children are in perfect health it may be they will have natural immunity to all or most infectious diseases. But all children are not in such health—in fact few are; so nothing is to be gained by exposing the other children in the family to infection. At the first sign of disease if a child is taken from solid food or milk, and given nothing more than fruit juice and water; if it has a bath in warm water, an enema and rest, the sickness will not likely be long nor will it seriously endanger the patient or others.

In bathing small children, be especially careful that they are not exposed to cold or drafts; dry them well and see that while one part is being bathed the rest is protected with adequate covering of light material. Change the personal and bed linen often enough to be always clean and dry. A child may be so easily put on another bed or a couch while the bed is being made that this may be done without disturbing it, even during high fever. In such cases, however, it would perhaps be better, before moving, to reduce the temperature by the use of the sponge bath. (See *Water and Health*, Vol. VI, Sec. 2.)

Care in Bath-
ing Children

Always hold a child's head when there is vomiting, as it is comforting and relieves the strain. Assist the vomiting by giving a little water or other emetic (See *Emetics*, Section 5) and tickling the throat if necessary, when there is strenuous retching. In case of frequent urination without control, rubber pants may be used over the diaper; or a bath towel may be pinned about the abdomen with a good-sized knot at the back

so the child will sleep in some position other than on the back, this change often being beneficial. Never give food during a fever, unless this is due to tuberculosis. Fruit juices, unsweetened, are permissible, however, and often beneficial. Take a child up as little as possible when it is acutely ill. Children are soon spoiled and make life miserable for themselves and their mothers or nurses, even after a short illness, if they have been "nursed" in arms too much—and almost any amount is too much. Besides, the handling of the child definitely aggravates the disease.

The above are some of the simple things to consider in nursing children. Each case of childhood illness will call for its own details of nursing, as will each adult illness. But children respond so readily that perhaps special care should be taken to see that they get proper nursing.

When a child is over the gravest or most serious part of its illness and is on the mend, it may be allowed to play with small toys. But the crib or the bed should not be loaded with playthings. It is better to give but one at a time and let the interest be exhausted in that before giving another, changing, perhaps, several times at each playtime. Children find more amusement in simple toys, or in something from which they can "make something," than from expensive, elaborate playthings. If they are old enough, let them have cardboard, paper, scissors and paste. It is often better to leave the child to himself and his own devices for a good share of the time than to try all the time to amuse him.

When to
Give Toys to
Children

In reading to children select stories that are not too exciting, long or tedious. Something that is quietly amusing or entertaining and suitable to the child's state of mental development is best. There should be no attempt to teach during illness; the object of reading and story-telling is to entertain. Children easily tire of another's reading and, for that matter, of anything that is long continued. If the child does his own reading, be especially careful that the light is arranged at the back, or back and side; that it is not glaring; that the print is of good size; that the child is in good position and holding the book properly, or resting it properly upon an adjustable reading board; and do not allow long reading periods or exciting stories.

As they progress in convalescence, children may be encouraged to do, or be assisted in doing many things. Cutting paper dolls, fitting their dresses, and making furniture for them out of paper and cardboard; making other cardboard toys; making things out of paper; dressing regular dolls and sewing and knitting for them; modeling clay; coloring pictures with crayons; drawing with crayons and pencil, making scrap-books of pictures, advertisements, postcards, stamps, jokes, poetry, etc.; stringing beads and making things of beads; plaiting, weaving and making knots; putting picture puzzles together and working other puzzles; playing children's card games; working with flowers; studying flowers, trees, birds; working in little gardens, out of doors or at the window; playing with mechanical toys; making some sort of collection, such as of stones, shells, leaves; blowing soap-bubbles; sailing boats or floating toys in a basin or a tub of water; etc., etc. Later, as the little patients progress and grow stronger, walking, playing in a sand-pile, riding and other outdoor amusements and activities will be taken up.

**Diversions
for Child
Patients**

STERILIZATION.—By sterilization is meant making an object free from germs. This subject is taken up briefly under *Relation of Sanitation and Hygiene to Health* (Vol. I, Sec. 6.)

DISINFECTING A ROOM.—It was formerly a matter of routine to disinfect, by *fumigation*, the rooms that had been occupied by patients having some form of communicable disease. It is now generally considered that such treatment is of little value. These diseases are most dangerous (most easily communicated to others) long before the period when fumigation can be used. The room itself, with the clothes and other cloth materials in it, dust, books and other objects which the patient has handled, need be given little consideration.

**Room Dis-
infection**

With such things as dishes and the immediate bedclothes of the patient the case is different. The dishes should be boiled after each use and kept separately from those used by others in the household. The bedding and clothing of the patient (after such diseases as diphtheria, scarlet fever, meningitis, smallpox, tuberculosis, typhoid fever and poliomyelitis or infantile paralysis) should be thoroughly disinfected by boiling. The pillows and mattress likewise should be disinfected; but as this is sometimes difficult, many physicians insist upon

their being burned. Thorough airing and sunning, for several days, however, should make them safe.

Fumigation

For those who want the additional safeguard of fumigation, the best method is as follows: Pour seven ounces of fresh potassium permanganate crystals into a deep galvanized pail and pour over these one pint of 40 per cent. solution of formaldehyde diluted slightly with two ounces of hot water. Within about a quarter of a minute there will begin a "boiling," and soon a dense column of formaldehyde gas will be given off. Before this treatment is started, all openings, cracks and crevices (including the keyholes) through which air may enter or the gas escape must be sealed, paper secured with flour paste being excellent for the purpose. The quantities mentioned are for each 1,000 cubic feet of room space (10 by 10 by 10 feet). The room should remain closed and sealed for twelve hours.

The treatment must be given just as mentioned, or there will not be satisfactory disinfection. It will be better if the deep pail is placed in the center of a large wash-tub; otherwise several thicknesses of newspapers covering an area of three or four feet square should be placed under the pail. Any bubbling over of the fluid upon the floor will make stains that are not removable. The room should be thoroughly aired for several hours, preferably for a day and a night, before being used again.

First Aid Equipment

THE MEDICINE CHEST.—It is not expected that the physical culturist will have a typical "medicine" chest, for there will be no giving of medicines during illness. The first-aid kit or closet may contain simple remedies for local application. To these may be added a few others. Or there may be some special place for these additional preparations and articles. The following articles and preparations, the uses for which will be readily understood, may be kept on hand: Olive oil, vaseline, boracic acid (powder and fresh solution), Baumé analgesique (to rub on for pain), baking soda (bicarbonate of soda), mustard powder, lime-water, packages of sterile cotton and gauze, sterile gauze bandages (one- and two-inch widths), adhesive plaster, rolls of old flannel and linen, oiled silk or rubber tissue, fountain-syringe bag or enamel irrigating can, tips and tubing for syringing, hot-water bag, ice-bag

or ice-cap, measuring glass, eye-cup, medicine dropper, nasal douche, nebulizer, sprayer and so forth.

MEASURES.—A teaspoonful is approximately one dram; a tablespoon approximately half an ounce; one ordinary glass eight ounces; two ordinary glassfuls one pint.

Do's IN NURSING.—It is impossible to enumerate all the things that one must do in nursing. But many mean the difference between the comfort and satisfaction of the patient, on the one hand, and discomfort and dissatisfaction, on the other. Among these may be mentioned the following:

**Do's in
Nursing**

Keep the patient clean. Keep the bedding clean. Keep the surroundings clean. Change body and bed linen often enough so the patient will feel fresh. Smooth out the bedding often. Change the position of a helpless patient frequently. Place a pillow under the knees or use a foot-rest part of the time to ease tension of the back and at the back of the legs. Supply a foot-stool when the patient sits in a chair. Place a small pillow at the small of the back occasionally when the patient lies flat on the back. Keep the patient comfortable as to temperature—amply covered and the room comfortably warm, but neither in excess. Keep the bedclothes loose over the feet. Adjust pillows frequently, turning them and freshening them. Keep the room quiet. Keep the light adjusted according to the patient's needs. Darken the room for an hour's rest daily. Give all treatments carefully, but quickly and confidently and with as little fuss and muss as possible. Serve the food regularly if the patient is being fed and make it attractive. Keep pieces of old linen for expectoration, burning them after use. Keep the room well aired.

Leave the patient alone at times. Be cheerful and optimistic. Know when to do nothing. Know as far as possible, without a call from the patient, that a thing is necessary—in other words, study the patient's needs. Keep the patient free from depressing news or information, of the world in general and of things and conditions about the home. In case of quarantine, even though it may be inconvenient and seemingly unnecessary, observe the regulations. Certainly no harm can come from it.

DON'TS IN NURSING.—Don't become impatient. Don't forget that tact is necessary in the sick-room. Don't consider

as too arduous any task which can contribute to the comfort or ultimate good of the patient. Don't talk too much. Don't talk about the patient's illness. Don't fail to tell the patient he or she is looking better when such is the case—and sometimes when it isn't. Don't hurry, thereby irritating the patient, and don't hurry the patient. Don't forget that the mind greatly influences the body; hence don't fail to cheer the patient when he is especially downcast and often even when he is feeling well.

Don'ts in
Nursing

Don't stay in the room all the time. Don't remain in the room all the time the doctor is there unless he requests it. Don't allow visitors to remain in the room during a doctor's visit. Don't fail to have things all ready before starting any treatment or change of bedding. Don't expose or move the patient more than necessary during any treatment. Don't walk about unnecessarily; step outside for your exercise. Don't walk with a heavy tread; wear rubber heels, never leather or wood. Don't rock in a rocking-chair.

Don't stare at a patient while sitting doing nothing else. Don't rattle newspapers or magazines or slop-jar lids, or other things capable of making irritating noises. Don't wake the patient for food or treatment. Don't touch any part of your face after contact with the patient until your hands are washed. Don't forget that observation of symptoms, especially in acute disease, is important if treatment is to be properly adapted by the nurse or the physician. Don't do anything without considering its possible or probable immediate or ultimate effect upon the patient. Don't become careless during convalescence. Don't forget to do as you would be done by were you in the patient's place.

MASSAGE AS AN AID TO HEALTH

Section 4

MASSAGE (pronounced *ma-sazh'*), from the Greek, *masso*, meaning "I knead," is a series of manipulative procedures of the hands upon the body, consisting of stroking, friction or rubbing, kneading, pinching or rolling, and tapping or percussing, with a curative, palliative or hygienic object in view. Massage may be combined with joint movements, either passive or active, assistive or resistive, according to need. These movements sometimes are called the Swedish Movement cure.

Massage, being really an instinctive procedure, has been used by human beings from earliest times. Savage tribes have employed it to great advantage; the peasantry of many nations use it in more or less different manners for the treatment of various disorders. For ages mothers have gently massaged their little babies to relieve the distress of colic, to quiet fretfulness and to soothe them to sleep. Pains, cramps, swellings, strains and many other conditions seem naturally to call for some form of rubbing.

Hippocrates had a better understanding of the effects and value of massage than many physicians today. He said: "The physician must be experienced in many things, but assuredly also in *anatripsis*, the art of rubbing up; for things that have the same name have not always the same effects. For rubbing can bind a joint that is too loose and loosen a joint that is too rigid. Rubbing can bind and loosen; can make flesh and cause parts to waste. Hard rubbing binds; soft rubbing loosens; much rubbing causes parts to waste; moderate rubbing makes them grow."

Massage was employed in one form or other by the ancient Greeks and Romans. The senators, the aristocrats, the wealthy and in fact all classes even down to the enfeebled old slaves, received massage for different purposes; for general hygiene or health improvement; for hastening slow

**Massage: Its
Definition
and History**

**Hippoc-
rates'
Theory of
Rubbing**

**Massage, as
Used by the
Greeks and
Romans**

convalescence; as an adjunct to their luxurious bathing; to maintain suppleness and strength of muscles and joints preparatory to contests of strength; in order to render strains and tissue rupture less likely and to restore strength for the continuation of their labors. The Romans often used massage as a substitute for more strenuous exercise and to remove the effects of overfeeding and excessive drinking.

Plato divided manual movements into two classes, active and passive, and particularly recommended the latter. In the early days the physicians themselves sometimes practiced the movements; but among the Greeks a specially skilled class called *paidotribes*, or trainers, gradually developed. The priests of Egypt, and likewise the early Persians used certain movements for the treatment of different conditions. Various movements have been and are now employed in Turkey, Africa, Siberia, Lapland, China, and some of the Pacific Islands; and the blind *masseurs* of Japan are almost world famous for the excellence of their touch and of their manipulations. The science and art of massage, as well as many other worthwhile sciences, gradually died out during the Middle Ages, but it was revived in the beginning of the nineteenth century by Peter Henrik Ling, of Sweden, although his system was largely one of gymnastics without apparatus, designed specifically not only to improve the general health but to correct abnormal conditions and to remedy anatomical or structural defects.

THE PHYSIOLOGICAL EFFECTS OF MASSAGE.—The various movements of massage, as described later, exert their individual effects upon the tissues and upon the body as a whole. The skin, muscles, fascia, blood-vessels, lymphatics, nerves and even the internal organs, are influenced by massage.

Gentle stroking has a soothing effect, familiar to everyone. Reduction of hypersensitivity and often of pain follows the kneading, rolling and pinching movements.

The Skin is greatly influenced by massage. Normal skin is tough, yet flexible and elastic. Under the influence of massage it becomes softer, of finer texture and more supple, while at the same time it becomes tougher, more flexible and more elastic. The skin is often so sensitive it cannot be

grasped for massage movements without causing more or less pain and yet after a thorough course of massage the patient may almost be lifted up by the skin, as one sometimes lifts a cat or a dog. The circulation of the skin, the activity of the pores and the oil glands, the growth of the hair upon the area treated, all are improved by massage. Through the nerve reflexes, as yet not all thoroughly understood, the entire nervous system and the functioning of deeply seated organs may be influenced to no small degree by massage movements.

The Muscles undergo considerable change as a result of massage deep enough to affect them. The circulation through them, their nerve supply and the cell activity within them, are benefited. They become more supple and pliant, their power of endurance is greatly increased and they are more responsive to the will. When muscles are fatigued, or even exhausted by exercise or labor, they recover far more quickly under the influence of massage than is possible under rest treatment alone and become capable of doing about twice the amount of work they did before; even after only a short rest, following a few minutes of massage, exhausted muscles have been able to do as much work as after two hours of complete rest. Muscles weakened by fasting, by loss of sleep, by mental labor, by electricity and by fever have been restored to normal after only a few minutes of massage.

**Muscle
Strength
Restored by
Massage**



Massage treatment of the hand and wrist is suggested by manipulation shown in the above illustration.

The kneading movement has a greater restorative effect than any other single massage movement, though the best results are secured by using all the forms. The maximum restorative effect of massage, when properly done, is secured within a few minutes (five minutes in the case of small muscles, as of the hands and forearms), longer manipulation failing to increase the muscle power and, in fact, sometimes slightly reducing it.

It should be understood that in such instances the massage is not making weak muscles strong; it is merely aiding in rapidly removing fatigue poisons or toxins which temporarily paralyze or inhibit the nerves and muscles and prevent normal action. While massage will have some effect in strengthening genuinely weak muscles, by improving the circulation of the blood through them, and thus promoting metabolism, this effect will be comparatively slight, for muscle must be contracted throughout its full extent if it is to be really strengthened.

Effect of
Massage
upon Fatigue

Restoring inherent strength in a muscle temporarily exhausted or inhibited is different from giving strength to a muscle that has not had it. Because of the toning-up effect upon muscle, massage given before physical labor or exercise will postpone fatigue; so it will have the same effect after fatigue has begun to appear. As with the ancient Greeks, so today, athletes are prepared for their contests by general massage, all the movements being employed; and a short massage, general or to the most strenuously used muscles, is frequently given after a contest.

Blood and
Lymph Cir-
culation

Both *Blood and Lymph Circulation* are benefited by massage. Veins and lymphatics are mechanically emptied by friction toward the heart and by deep manipulation, the blood and lymph being pushed along. As this happens, a form of suction is created which increases further the flow of fresh blood and lymph into the part massaged. In this way the circulation in the deeper vessels is stimulated and congestion is relieved; likewise, the flow of blood in the more distant capillaries and arterioles is accelerated. The momentary pressure upon the larger arteries causes a slight degree of dilation of these vessels above the point of pressure and when this pressure is released the heart-beat and the resiliency of

the arterial walls force this blood on more rapidly and with greater force than would otherwise be the case. In this way the entire circulation is improved, at least temporarily.

By special experimentation it has been found that during massage the blood flows three times faster than normal. This pronounced effect upon the peripheral circulation is one reason for the beneficial effects of massage in most forms of heart disease, for the improved surface circulation lessens the work required of the heart and reduces the strain upon this organ. Probably because of the improved circulation through certain internal organs which have to do with forming or of storing blood-cells until called for, massage increases the number of red blood-cells and also the percentage of hemoglobin.

Special experimentation to determine the speed of the flow of lymph showed that this fluid travels in the lymphatics at a greatly increased rapidity above the ordinary during and for some time after massage. It was further shown that at such times the flow is much more abundant from inflamed than from healthy areas.

The Nervous System is as much influenced by massage as any other system of the body. According to the manner of the manipulation, it may be stimulated or soothed, toned or irritated. Sleep, lasting sometimes for hours, is often produced in insomnia cases and frequently a short sleep following massage is as invigorating as several hours of sleep under ordinary conditions. As a result of a sedative massage, the mental condition often changes; fears, worries and apprehensions are dispelled and pessimism turned into optimism. A valuable feature also is the lack of unpleasant after-effects. Through its influence upon the nerves abnormal sensations are banished or relieved; motion and power of motion, as stated earlier, are increased; and the nerves controlling the secretions of various glands and organs are so influenced that these secretions are stimulated and improved.

Massage may be local or general, depending upon whether a single extremity, a joint or some other definite area of the body is worked on, or whether the whole body is systematically gone over.

For general massage to be effective it is necessary that the patient be placed upon a firm table or other support

**Massage and
the Nervous
System**

**The General
Massage**

that does not spring or "give" with every movement of the operator. The best height for such a support is 28 to 30 inches, the width being about the same and the length six feet or more. The top of the table or support may be upholstered or covered with a thin mattress, with several folds of blankets, or with a comforter over which a clean sheet should be placed. General massage given upon a bed is extremely tiring to the operator, though it is often necessary to give it in this way. If possible, in such cases, boards should be placed under the mattress or springs to prevent "giving."

The Local

For local massage the patient may recline on a bed, a massage table or other suitable support, or, as with an arm massage, he may sit with the arm resting on a thin pillow or folded blanket, placed on a small table beside him. In any case, the part to be massaged must be thoroughly relaxed and at rest.

Heat applied in some form often precedes the massage, for better results are obtained in this way than without it. If the massage is to be general the heat should not be sufficient to cause sweating, unless it is immediately followed by some suitable cooling application. For the general massage, it is best to use only a sufficient amount of heat to increase the superficial circulation, the operator working either during or after the heating, with the body well covered except for the part under treatment. For local massage the part may be thoroughly heated beforehand by a hot-air "baker," radiant light and heat, fomentations, diathermia or similar means.

Technique of the Massage Movements

The movements should begin moderately, then increase gradually in force to the extent desirable and then be gradually brought to an end. As large a surface of the hands and fingers of the operator as can be easily and effectively used should be employed, as it is a waste of time to use the finger tips or small surface of the hands when this is not necessary. However, there will be areas where it will be necessary to work with the ends of the fingers and thumbs. The manipulator should be at the distance from the patient at which it is easiest for him to work, that is, neither too near nor too far away. The patient should be in a comfortable, easy and relaxed position, preferably with the joints midway between flexion and extension. The massage is applied to the nude

surface of the body, though parts not being worked on may be covered with a sheet. Do not roll up clothing on an extremity, lest the veins and lymphatics be constricted.

The room temperature should be about seventy degrees, or for an anemic or elderly person or one with defective circulation, seventy-five degrees. The direction of the movements should be, as a rule, from the distal end to the proximal end of an extremity, from the extremity to the trunk, from the insertion to the origin of muscles, in the direction of venous flow—which is from the periphery toward the heart. The force and frequency of the manipulations and their duration will depend upon the part being treated, the general condition and age of the patient, the state of the nerves, and the reaction to the manipulations. This last must be studied by the manipulator. An operator working efficiently can accomplish more within ten or fifteen minutes than one giving a haphazard treatment can accomplish in an hour.

Some manipulators always use a lubricant, such as olive oil, petroleum oils or vaseline. Some use powders, such as boracic acid and talcum. The object of these applications is to reduce friction. Some operators use nothing. On a hairy surface massage without a friction-reducing substance is likely to be uncomfortable. In any case the effect upon the nervous system is much more pronounced when nothing is employed, this effect being sometimes a pronounced stimulation. In some instances this may be desirable, but as a rule the opposite effect is sought. Oils are messy and difficult to remove, and their use prevents, to a great degree, stimulation of the nerve-ends. Some degree of stimulation (aside from that produced by the massage movements themselves) is desirable in many cases of lowered functioning. If the skin is very dry, leathery or undernourished or if an attempt is being made to free adherent scars, or to bring some measure of elasticity to the part (at least to reduce tension and contraction), the use of oil is beneficial. Otherwise, talcum powder is better, as it is easily applied and easily removed, reduces the friction satisfactorily and is not messy.

The Use of
Lubricants
and Powders

THE MASSAGE MOVEMENTS.—Text-books on massage give from three to seven different movements; but there are really only four chief movements, the others being variations of these

four. These movements are: (1) stroking; (2) friction; (3) kneading; and (4) percussion.

**Kinds of
Massage
Movements**

Stroking (effleurage). This massage movement, which begins practically all massage treatments, consists of light strokings usually toward the trunk or the heart (centripetal movements). According to the part being worked on, it may be done with the tips of the fingers, the thumb, the palm of one or both hands, or, when care is used, with the ulnar (little-finger) side or edge of the hand, or with the backs of the fingers. The tips of the fingers or the last two sections (phalanges) are used principally for stroking around joints because the fingers can conform to the shape of these parts. The thumb is generally used for stroking between muscles, also up the entire arm or leg, though in this case the palm of the hand is employed at the same time, on the opposite side of the extremity. The palm is also used on the neck and the back of the head and on the abdomen. Both palms are employed upon the chest and the back and sometimes on the neck.

**The Tech-
nique of
Stroking**

In stroking it is best to use only light pressure at all times, but the movement, when properly done, consists of light pressure toward the heart and light contact as the hands are brought back to the starting point, much as a carpenter uses his plane, the next movement to begin immediately. In other words, the movement is continuous, the hands not to be taken entirely from the body surface at any time during the progress of the stroking. These movements are soothing, relaxing and sedative if slowly performed and mildly stimulating if done rapidly. They help to unload engorged veins and lymph-channels. Because of the action of radiant light and heat, fomentations and diathermia upon the nerves, blood and lymph-channels, stroking is less important when one of these forms of heat is employed and may even be dispensed with.

Friction. Some manipulators make little or no difference between stroking and friction, making their stroking in effect a friction. Some combine the two, using friction on the upward or centripetal stroke and light stroking on the downward or centrifugal movement. But there is or should be a difference. Friction may be given with the finger tips, the thumb, or the hand, open or clenched. Finger-tip friction is

employed around joints and fleshy parts of the thigh and the arm and often on the neck. The thumb is used for friction upon the extremities and small surfaces, as for the facial muscles and around joints. The entire hand is used upon fleshy parts and large surfaces, such as the arm, the thigh, the back, especially along the spine and in the lumbar region, the hips, the chest and the abdomen.

On hands and feet friction is given in straight lines toward the trunk. On arms and legs straight friction strokes may be employed also, with long oval strokes from joint to joint, the up strokes being strong, the down strokes light. These latter strokes should begin on the inner side of the arms and the legs, the better to empty the large superficial and deep vessels. Semicircular downward and outward friction strokes are made from the base of the skull to the spine or the scapula (shoulder-blade) and similar strokes are made from this point to the upper end of the sacrum, these latter being long and sweeping. The hip is frictioned upward, the manipulator usually but not necessarily facing the patient's head. The chest is frictioned from the breast-bone to the armpit with semicircular strokes downward and outward. Friction to the upper abdomen is given semicircularly upward and inward to the center.

**Technique of
the Friction
Massage**

With the exceptions mentioned above, all friction is done in the direction of venous flow—toward the heart, or centripetally. If stroking does not precede the friction it should immediately follow. By friction the products of fatigue accumulated in the superficial tissues are forced into the circulation. Thus all the fluid-channels and nerves embedded in the tissue are influenced.

Kneading (variously termed *petrissage*, grasping, pinching, manipulation, compression). The strokes or movements mentioned above prepare the tissues for kneading, though some manipulators alternate friction and kneading. The divisions of body surfaces and the directions of the working movements are the same for kneading as for friction. In this manipulation there is alternating pressure and release of each hand, one hand pressing while the other is relaxing, making the movement a continuous one. Kneading is done with the two thumbs, the thumbs and fingers, or with the two hands,

**The Tech-
nique of
Kneading**

using as much of the hand surface as will conform to the part being massaged. The thumbs (opposed by the forefingers) are used for individual and small groups of muscles; the thumbs and fingers (called pinching) for individual muscles and deep-seated tissues; and the two hands, opposing each other (called squeezing) for the thighs, legs and arms.

In advancing from one part to another each surface treated should overlap by half the part that has just been finished. The hands are not lifted entirely from the surface, yet care must be taken not to pull upon any hair or otherwise irritate any part. The hand—or the part of it used—does not slide over the skin, but carries the skin with it during the compression and relaxing. Hence, the tissues beneath really are massaged by the skin, under pressure of the hands. This necessitates small movements forward and backward or side-wise. These movements are more or less circular, in an in-and-out manner (somewhat forward, down into the tissues, and upward out of the tissues toward the operator), as well as sometimes in the plane of the surface. In relaxing each grasp there should be a pause only sufficient for the other hand to perform its grasping movement—not long enough for the fluids pressed out and forward to return into the tissues.

Delicacy of touch is desirable and should be cultivated. The beginner usually kneads too vigorously and too long, resulting in bruising of tissues and general overstimulation or exhaustion of the patient. But the force of pressure depends to a considerable extent upon the nature of the tissues. If the patient is large and his tissues firm, it may be necessary to reinforce one hand with the other and to put into the work all one's strength. Some comparatively thin people want the massage to be given with force enough so that they "can feel it"; yet sometimes these very patients should have comparatively mild massage.

The first few treatments should always be reasonably gentle, the force used increasing with successive treatments. Over the abdomen the squeezing manipulation should be light in comparison with that given to the back and the thighs; yet in kneading, especially for bowel stasis, firm pressure may usually be given with safety. On account of the pelvic organs, including the bladder, pressure should be lightened over the

Advancing
From One
Part to
Another

The Force of
Pressure in
Kneading

extreme lower abdomen. The front of the neck (the throat) cannot endure as much pressure as may be applied to the back of the neck. The chest as a whole can bear firm pressure, but the breasts of women must have light pressure. In case of pain, the force of the pressure will depend upon the nature, degree and cause of the pain and the effect of the manipulations.

In grasping for kneading one must learn the degree of contact required. The force necessarily must be graduated so that the patient's tissues may glide over each other. If the pressure used is too great this cannot be done; besides, there will be too great compression, with bruising of the tissues. If the pressure is insignificant the operator's hands will slip, and an ineffective treatment will be given, perhaps with irritation from traction upon hairs. If there is strong pressure and at the same time a gliding of the hand over the surface, the skin will be chafed—an error common with beginners. The use of a lubricant or powder will reduce the likelihood of this, but the control of the grasp should prevent it. If the treatment is to be given daily or on alternate days, it is necessary that the tissues be not traumatized, chafed, or otherwise injured or irritated. Though firm, the manipulation should not cause pain, or even discomfort. On the contrary, it should be enjoyable.

The Grasp in
Kneading

Kneading has an effect upon both superficial and deep tissues, skin, fat and muscles, arteries, veins, lymphatics and nerves, and through these, also partly directly (as in abdominal kneading) on the deep-lying organs and glands. Muscular nutrition is improved by this manipulation in conditions of fatigue, obesity, anemia, atrophy and other forms of muscular degeneration, and the body temperature slightly raised. Gentle kneading stimulates muscle growth and soothes the nerves.

Effects of
Kneading

Percussion (*tapotement*, pronounced *ta-put-mon'*). This includes hacking, beating or knocking, clapping and punctation. Regardless of the form, this movement is always done with the wrist relaxed, the hands striking quick, light blows.

Punctation is performed with the finger-tips and is employed upon the head, around the heart region and where bone is close below the skin, as about the knee and the ankle joints.

Hacking

Hacking (striking) is done with the little-finger (ulnar) border of the hand. It is used upon the muscles, around nerve-centers, and along nerve-trunks, such as the spinal and sciatic nerves. This form may be employed in one of three ways: the ulnar side of the little finger alone may strike the skin, the other fingers of the hand being lightly separated so that when the little finger strikes these other fingers come together; or the little finger may be fairly well flexed, the next slightly less, the long and index fingers nearly straight and the hand turned partly palm up, so that when striking the backs of all the fingers strike the skin; or the backs of the fingers may be used, the palm being turned upward.

Clapping is done with the flat or somewhat cupped palms. It is employed as a stimulant to the skin and superficial nerves and vessels. This is the movement familiar to all who have frequented Turkish baths where it is used with phonetic if not physical effect.

Beating (knocking) is done with the backs of the fingers of the clenched hand, being employed upon the hip muscles and the back of the thigh and sometimes along the spine and the front of the thigh.

Technique of Percussion

All these movements are in the nature of percussion. Usually both hands are employed in rapid alternation, giving somewhat the effect of mechanical vibration where a long stroke of the percussing applicator is employed. Full-arm strokes or stiff-wrist strokes are never employed. The arms should be held close to the sides, the wrists being loose, the movements being sharp, snappy and springy, rather than strong, heavy and lingering, even when the clenched hands are used. These movements are usually crosswise of the muscles.

Upon the back this crosswise movement may be used; but a still more effective method is to have the patient stand slightly bent forward with the dorsal muscles somewhat on the stretch, the hacking movement then being performed with the hands parallel to the spine. The vibratory effect of this treatment, transmitted to the spinal nerves, produces a peculiarly agreeable and delightful thrill. Given in this way, or in any of the other ways mentioned, percussion is excellent vibration and even more agreeable than that given by a

mechanical vibrator. But mechanical vibration, by means of the small hand or wall vibrator, often follows massage and may be given to the spine alone or to any other circumscribed region. (See *Vibrotherapy*, under *Miscellaneous Treatment Measures and Health Factors*, Vol. VI, Sec. 7.)

The best time for giving general massage is midway between meals; but if an hour elapses between the treatment and a meal there are not likely to be any detrimental effects. When one is fasting, or is on the fruit-juice or milk diet, general massage may be given at practically any time, though when on the milk diet it is better to wait at least fifteen minutes after a glass of milk has been taken and also to have the massage before mid-afternoon, from which time on the abdomen is usually more or less tense from the large quantity of milk consumed. If sedative massage is given, it may be employed immediately before the patient goes to sleep for the night. But in some few cases massage tends to cause temporary wakefulness, in which case it would be best to give the treatment an hour or so before bedtime.

**Massage in
Dieting**



**MASSAGE
PROCEDURE.** —
Therapeutic mas-
sage is divided
into introduc-

1. Local massage. Massaging the throat is accomplished largely by the use of the finger-tips, as shown above.
2. In massaging the chest the operator usually but not necessarily stands over the patient's head and uses both hands.

Introductory Massage Movements

tory, general and local massage. In some conditions it is best to give a few *introductory* manipulations in the region of the affected part, chiefly to empty the veins and lymphatics and thus prepare them for receiving the broken-down or disease products thrown into them by the massage. Thus in joint affections, centripetal strokings and a little moderate kneading in the neighborhood of the joint to be treated, especially above the joint, will make possible the more rapid carrying off of materials sent into the circulation when the massage proper is given.

Work upon the inner surfaces of the extremities, where the main veins and lymphatics are located, with moderate elevation of the extremity, should receive special attention. Massage of the neck prepares for free venous flow from the head and is excellent introductory massage for circulatory and nervous affections of the latter part. Massage of the liver should be introductory to massage treatment of hemorrhoids, to prepare the abdomen for receiving the blood sent from the rectal region. It is impossible to enumerate all the introductory massage movements for different disorders; but the above will serve as illustrations. The final results of massage depend more or less often upon proper introductory massage.

GENERAL MESSAGE.—By this term is meant massage of the entire body excepting the head.

Thigh. The patient lies on his back with his knee flexed, his foot resting comfortably on the table or in the operator's lap. Treatment begins by stroking the thigh from knee to groin, both hands with alternate, upward movements, at first gentle, then with increasing pressure to the quality of friction. When this is finished, kneading the thigh at the groin is done with both the full hands, one on each side, as much muscle as can be held being grasped. An alternate, rotary movement is then started, directing the pressure upward and moving the hands slowly toward the knee.

When thigh massage is complete, the knee is treated similarly, the leg and the foot last. This order of movement accords with the blood flow from below up. If massage is started at the foot too great a volume of blood must be pushed up. This objection is prevented by beginning near the groin,



1. General massage in many cases is begun by treatment of the feet. In turn the legs, the arms, the abdomen and the back may be massaged as movements proceed. Massage treatment of the ball of the foot and the toes.
2. Massage treatment of the sole and top of the foot.
3. Massage treatment of the calf. Note the pinching grip of the attendant and the use of both hands.
4. Massage treatment of the upper leg. The rolling movement here shown involves attendant's use of both hands.

with the understanding that pressure should be in the direction of the venous flow.

Calf. Strokes are next made up the leg from the toes to the calf muscles, then the ankle area is kneaded with fingers and thumbs. Strokings then are given from the ankle to the knee, followed by circular friction, special attention being given to the inner surface, after which the muscle masses are firmly grasped and pinched and kneaded deeply, using the "depth-circular" and the lateral-circular motions. For this kneading it is best to have the foot brought partly toward the hip (knee up), in order fully to relax the muscles. Strokings complete the treatment, these being carried well above the

Stroking the
Calf Muscles



1. The kneading exercise is a very effective massage treatment of the lower arm.
2. Massage treatment for the upper arm. Note the rolling movement of the attendant's hands.

knee, after which the knee area is worked on with the ends of the fingers and the thumbs, and flexion and extension movements made if these are to be given.

The stroking and friction are now carried from below the knee to the hip, giving special attention during both movements to the large-vessel area on the inner surface of the *thigh*, but not neglecting the other surfaces. The large muscle groups are then kneaded and rolled, upward stroking being given at intervals from knee to hip to aid venous flow. Both hands work on the calf and the thigh muscles, one kneading while the other releases. On the thigh muscles considerable work is done with the heel of the hand, opposed by the fingers. After kneading, the hands are placed crosswise of the muscles, one on each side of the thigh, then rolled in opposite directions (one toward and the other from the operator), giving fair pressure as this seesaw movement is carried from the knee to the hip, over the entire surface of the thigh. Cross clapping, or hacking of the whole surface of the thigh except the posterior, is then done and stroking completes the massage of the lower extremity. The other lower extremity is massaged in the same manner.

Stroking the
Thigh

Another method is to stroke and friction the entire extremity after working on the foot, then knead the calf and forward muscles of the leg, about the knee and the thigh, gradually working up to the hip, then give kneading or rolling to the leg and thigh muscles, finishing with hacking or cupping from the calf to the hip (avoiding the bone) and light-contact stroking for the length of the extremity.

Hands and Arms. The hands and arms are massaged in the same manner as described for the legs. The stroking movement may begin at the hand and be carried up to the shoulder, whereas the friction movement, which is a little heavier and deeper, should begin at the elbow and go to the shoulder or upper arm and from the wrist to the elbow or the forearm. The kneading of the arm should begin at the shoulder and go down, with the pressure directed upward in the direction of the venous flow. It is necessary during all these movements that the patient be well relaxed, arm supported comfortably by the operator. Kneading, twisting, hacking and stroking complete the massage. Care must be taken not to grasp the wrist too tightly when holding it either for arm stroking, friction, or kneading; that the arm worked on is relaxed; that kneading is carefully and thoroughly done; and that the upper-arm and shoulder are given sufficient attention.

Massaging
the Hands
and Arms

Chest. The chest is now massaged, the patient lying on the back without any support for the head. The arms are relaxed alongside the body. The operator's hands, one on each side of the sternum, perform somewhat circular stroking motions upward and outward. The thumbs friction the chest muscles (pectorals), with frequent strokings, from the sternum to the arm. The muscles are then pinched and kneaded with thumbs and fingers, one side at a time. Moderate hacking or clapping may now be done over the chest, the heart region being avoided, though punctation (hacking with the fingertips) may be cautiously done over this region.

Massaging
the Chest

Breasts. In giving massage to the breast, stroke and friction upward, inward and outward from the circumference to the nipple, never downward. In cases of caked-breast, it is very important that only friction and gentle kneading be given to hard spots or lumps. The breast massage is completed by gentle "fulling" pressure upward from the base of

the breast, as if molding the breast. Care must always be taken to avoid bruising the breast during any massage manipulations. Coconut oil may be used during the massage for relief of over-distended breasts.

**Massaging
the Abdomen**

Abdomen. In giving massage to the abdomen the patient lies without head support and has the heels drawn toward the hips, with knees up, to relax the abdomen. Most operators work better on the right side of the patient. Stroking may gradually merge into light friction which may also gradually increase in force, in a clockwise direction; then, placing the right hand flat over the abdomen, press upward along the ascending colon to the transverse colon with the heel of the hand; then with the index-finger border of the hand stroke across the abdomen to the beginning of the descending colon; then with the finger-tips stroke the region of the descending colon as far down as the pubic bone.

**Technique of
the Abdomen
Massage**

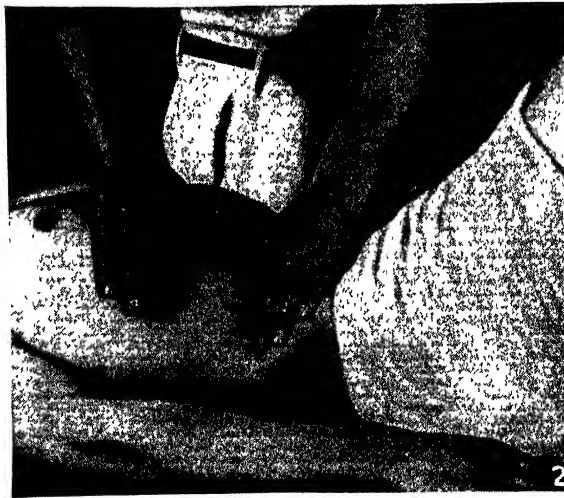
The kneading is done in various ways during the same treatment. Beginning in the lower left side of the abdomen (at the sigmoid flexure of the colon), knead with increasing depth of stroke with the finger-tips, making small circular motions and giving greater pressure on that part of the stroke that is toward the bowel outlet—in this case downward. After three or four circles here, slide the hands up the left side slightly and continue the circular strokes, then ascend to the lower ribs of the left side in this manner. Then continue the small circles while crossing the upper abdomen, now giving the greater pressure during the strokes toward the left. Carry these circles down to the lower right side of the abdomen, on this side giving greater pressure on the upward part of the circular strokes. Throughout this movement there is no cessation in the circular motions, the hand being slid along the skin in advancing to a new area without checking the circular action. The object of this manipulation is to break up any solid residue which may be in the colon.

After this movement has been done two or three times (sliding the hands across the lower abdomen from the right to the left side for repetition), the hand may be placed cross-wise over the abdomen and the heel of the hand used for kneading, with gradually increasing force. Alternating with this heel pressure on the near side, pressure may be made

toward the operator with the fingers on the other side of the abdomen. A rocking motion over the entire abdomen is excellent, pressure to the left being made with the heel of the hand, merging into pressure with the radial (index-finger) side of the hand toward the rectum, merging into pressure to the right with the finger ends, this merging into pressure toward the chest with the ulnar (little finger) edge of the hand. This rocking motion is repeated.

The two hands may be placed flat upon the abdomen, then moved cross-wise in opposite directions, both in

kneading and friction movements. One hand may be placed under the patient's back while the other hand kneads, thus giving a comfortable feeling of support to the patient. Vibration may now be given over the entire abdomen, if the operator has mastered this "tremor pressing," as it is sometimes called. If used, the vibration should be given directly downward, from side to side and during the rocking motion,



**Abdominal
Massage,
Percussion
and Kneading**

1. Percussion of the chest and abdomen with the palm (with hand held vertically) is very effective.
2. Massaging the abdomen calls for the use of both hands and a kneading movement.

Massage
Technique
for Upper
and Lower
Abdomen



clockwise. Also, one hand may be over the spleen and the other over the liver and the vibration given with the two hands toward each other.

The bladder should be emptied before the abdomen is worked on and in case of constipation it is a good plan to have the patient take an enema before the first few abdominal treatments. Never less than an hour should elapse after a meal before abdominal massage.

1. Massaging the upper abdomen consists in a thorough rubbing from one side to the opposite, the operator using both hands and exerting considerable pressure.
2. In giving the massage treatment to the lower abdomen, the operator makes particular use of the finger-tips over a small area.
3. Another massage treatment for the lower abdomen is shown opposite. The operator places one hand above the other, keeping the fingers together and the movement centered on one small area.

Stomach. Special massage of the stomach, liver and spleen may be given after general abdominal massage. The stomach may be massaged with the patient in the position taken for general abdominal massage. The massage consists of fingertip stroking and friction from left to right with the fingers starting below the left ribs. In case of prolapsed stomach the ulnar surface of both hands may be placed across the abdomen, below the umbilicus, the palms of both hands resting lightly on the abdomen over the umbilicus and giving gentle, but gradually deepening pressure as they are brought toward the chest. Care must always be taken in working over the stomach proper. In definite inflammatory disorders of this organ all manipulations over it, except stroking and light friction, should be avoided.

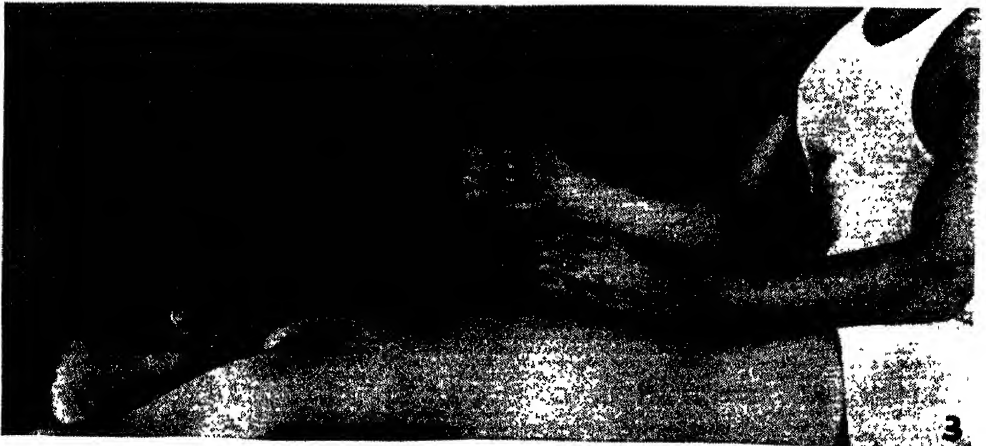
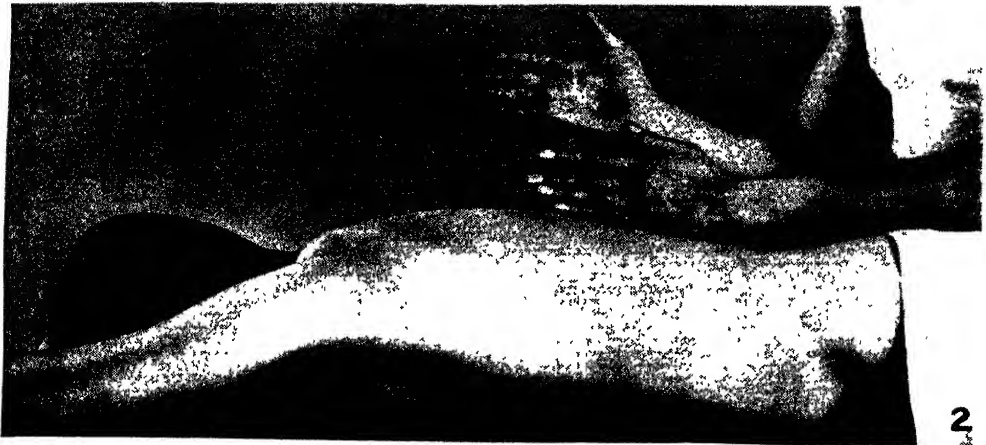
The Stomach
Massage

Liver. In giving massage to the liver, the patient lies on the left posterior "corner" of the body (that is, mid-way between lying upon the back and lying upon the side). The operator is at the patient's right, that is, facing the patient's back. Large circular stroking and friction strokes over the entire liver area begin the treatment. Then the region below the floating ribs is kneaded with the heel of the hand, followed by kneading with the finger tips up under these ribs. The cupped hands are used for clapping over the entire liver area. Following this the palm of one hand is placed over the liver area in front and the other at the back. Then vibration is given through the liver area. The treatment is terminated by placing the partially flexed fingers under the floating ribs and giving vibration to this region. Massage of the spleen is performed in the same manner as that of the liver, the patient lying on the right side.

The Liver
and Spleen
Massage

When the anterior portions of the body have been massaged, the patient turns so as to lie on face and abdomen, the head being without special support and the arms alongside the body, or, if the table is narrow enough, hanging downward. The legs and the thighs may now be manipulated if they have not been completely "covered" during the massage given with the patient lying on the back. In this case the same procedures described above should be employed; stroking, friction, kneading, pinching and hacking. Beating, with the clenched hands, is usually given to the backs of the thighs.

Back. In massaging the back, the first movement is strok-



1. Slapping with the palm of the hand is a conventional massage treatment.
2. The sides of hands may be used in producing effective percussive percussion of back.
3. Percussion of the back with the closed fists. The attendant should be careful in giving this, as it is easy to overdo the percussion or make the back sore.

ing from the base of the skull to the sacrum, one hand on each side of the spinal column. In small children, especially in cases of infantile paralysis, the first and second fingers of one hand are used for spinal friction, one finger being on each side of the spine. In adult patients, the back may be treated in three divisions: first, about the spine, then for several inches on each side of the spine, and finally the sides or outer portions of the back. Friction follows stroking, one side at a time, using the palm of the hand from the base of the neck to the hip muscles, followed on each side by stroking. The thumbs, one on each side, knead the tissues immediately adjacent, and down the entire length of the spine, the hands being spread over the back and the movement being in progressing circles: outward, upward, inward, downward—the thumbs, of course working in opposite directions. Then the fingers and thumbs roll the skin and subcutaneous tissues up in a sliding, pinching movement.

**Massaging
the Back**

Hacking along or crosswise of the spine now follows, going both up and down from the neck to the pelvic bones. Clapping with cupped palm directly over and on each side of the spine (one side at a time) now follows. Stroking then terminates the spinal treatment, the hands working one after the other in rhythm. The pressure is light, but the speed varies according to the effect desired—being quick for stimulation, slow and with more firm pressure for sedation. This stroking may be reserved for the final movement in the massage of the entire back. It consists of the movements already described.

Hip. The hip muscles, or glutei, may be massaged with the patient lying face down, but the better position is with patient standing at the end of a table and leaning forward with the abdomen and chest on the table. In either case the manipulations are the same. The stroking is outward and downward from the spine with both hands, followed by friction of one side at a time in the same directions, with one hand. The fleshy mass of muscles may be grasped between the fingers and thumb and kneaded. The heel of the hand, alternating with opposite pressure by the fingers, may also be used. The beating is done on one side at a time, with both hands clenched. Stroking may terminate the treatment.

**Massaging
the Hip
Muscles**

The Neck
Massage

Neck. The neck may be manipulated with the patient reclining face downward or face upward, or sitting erect. This movement usually terminates the general massage, or the neck may be the last part manipulated except for the throat, which may be the final part treated. If the patient is reclining the operator stands at his head, facing the feet. The stroking and friction are downward from the base of the skull to the base of the neck, then on downward and outward over the trepezium mus-

1. In massaging the back with both hands the operator starts at the lower back and works upward, keeping the hands spread and exerting some pressure.
2. Concentrated pressure can best be obtained in giving a back massage, by placing one hand above the other as shown.
3. Another movement in massaging the back is to start at the neck and work downward.

cle. One hand may massage one side of the neck at a time, or both hands may be used for double massage. In the kneading, the palmar surfaces of the fingers and the thumbs grasp the muscle masses of the back of the neck, pinching them and lifting them from the bones, from the base of the skull to the base of the neck, then travel over the trapezius muscles to the top of the shoulder. Or the fingers alone may be used, giving a double rotary movement to these muscles (circularly outward and inward, and "depth" circles). If he prefers, the operator may stand to one side of the patient, with the hand nearest the patient's head holding the forehead, the other passing over the face to grasp the far neck muscles, to knead and roll them over and from the vertebræ.

Another method of neck massage is for the operator to face the patient and, with the hands or fingers at the sides of the top of the neck, give downward stroking on the sides of the neck and out on the trapezius muscles to the shoulders. In a third method the operator stands behind the patient, the movements being similar to those just described. In either of these positions kneading may also be done, but it is better for the operator to stand slightly to one side for this manipulation, whether in front of or behind the patient.

Throat. The throat may be massaged with the patient lying on the back or sitting. If he is reclining it is better for the operator to sit at the patient's head, in order that smoother movements may be made. The throat, having delicate structures within and not being protected by heavy muscle padding, is more sensitive than the regions so far discussed. The heels of the hands are dropped along the side of the neck, the palmar surfaces of the fingers resting on the upper throat, the index fingers being immediately under the jaw. Stroking is done smoothly down the throat to the collar-bone. If one is careful there may be light kneading with the balls of one or two fingers on each side. After a few simple preliminary strokes, a gentle vibratory movement of the hands may be made during these stroking movements.

**The Throat
Massage**

If the patient is sitting, the operator faces him, having the fingers of one hand on one side of the throat, the thumb of that hand on the other side. The stroking is done as suggested, and slight kneading may also be done. The larynx, or "voice-



Massaging
the Head
and Face

1. In massaging the spinal region of the back, the operator uses the thumbs and finger-tips, working on small areas at a time.
2. The side of the back, too often neglected in massage treatment, requires somewhat the same movement as the spinal region. Use quick movements for stimulation, slow movements for sedation.

box," may be lightly grasped and vibrated, and vibratory strokes to the entire throat may be given. In this position of operator and patient it is best that the operator's free hand support the patient at the back of the neck, especially during the vibration. Some masseurs stand behind the patient for throat massage, a suitable way when using the proper technique.

Head. Massage of the head and face is sometimes given during a general massage, but not as a rule. In head massage the patient is usually sitting, leaning

against a chair-back so as to be comfortable and relaxed. Supporting the patient's forehead with the left hand (if right-handed), the operator places the thumb of the right hand on one side of the patient's head at the top, the fingers on the other side, and strokes downward to the neck, over the hair. The fingers are then slightly separated and passed through the hair so as to be in as close contact with the scalp

as possible. Then they are moved to and fro over the skull, drawing together and toward the thumb so as to roll the scalp between them. The fingers maintain a firm pressure but do not move over the scalp during the movement. This avoids breaking brittle hairs. To move the fingers to another region the pressure is relaxed though the contact is maintained.

After the entire head is stroked and kneaded (one hand doing the work at all times while the other is opposite, serving as a support), hacking (punctation) is done with the finger tips, or lightly with the ulnar surface of the hands. For this movement both hands work at the same time, in rapid alternation. Scalp massage is soothing and many bedfast patients are benefited by it. A considerable portion of the head may be massaged with the patient reclining. In most cases, however, hacking should be avoided.

Forehead. In massage of the forehead the thumbs are placed together between the eyebrows, and firm stroking movements are made in a curve upward and outward over the temples to the ears, the two thumbs working in opposite directions at the same time. The successive strokes gradually ascend on the forehead to the roots of the hair.

Face. In facial massage the patient may be sitting or reclining, and should be as much relaxed as possible. The treatment begins with the strokes to the forehead as mentioned above. Then with one hand stretching the part worked upon, the other hand frictions one half of the forehead at a time, in small circles. The strokings are repeated, firm pressure being made at the temples, moderately stretching the skin across the forehead. Then, with the finger-tips, outward strokes are made from the nose to the temples immediately above and below the eyes, followed by friction to the same parts and in the same directions. The fingers and thumb of one hand stretch the skin at the outer corner of the eye while the fingers of the other hand friction this region. This is excellent for the wrinkles commonly called "crow's feet." Then light stroking above and below the eyes is repeated. The sides of the nose are then stroked with the forefingers, from the eyebrows to the wings of the nose and then outward to the cheeks.

With a hand on each side of the face, stroking is done from



1. This illustration shows the most effective method of massaging the back of the neck.
2. Massaging the neck and lower jaw requires careful manipulation on the part of the operator.
3. In massaging the cheeks and forehead, the operator makes use of the thumbs and finger-tips of both hands. This is one of the most common of all the manipulative movements.
4. The top of the head should be massaged in a manner similar to that shown above. Headaches are often prevented or cured by such movements.

below the lower jaw to the center of the temples. The cheeks are frictioned and kneaded, the muscles being pinched and lifted as much as possible without pain. The general trend of the movements of tissues is upward, and below the mouth-level toward the mouth. With the patient's cheeks inflated, but with the patient breathing normally through the nose, the upward stroking is repeated. This terminates the massage, unless the face is fat and the massage is done to help

restore it to a normal condition, in which case friction may be repeated, followed by upward stroking and stroking around the lips and the chin. If vibration is to be used (and when properly used it is excellent), a mechanical hand or a portable vibrator should be employed, the soft-rubber applicators and especially the rubber brush being selected for use. This part of the treatment, however, must be of short duration.

In facial paralysis the above procedures are not used, except those about the forehead and the eyes. Somewhat more effective massage is given with the thumb over as much of the cheek region as can be reached, working opposite the index finger which is placed in the patient's mouth. The finger, of course, should be thoroughly cleansed. It may be protected by a rubber cot or a bit of silk or linen. Stroking, friction and kneading are given with the thumb in this position.

**Facial
Paralysis
and Massage**

Eye massage is given with the patient sitting and the head bent backward, the operator standing at the side. Placing the index finger of the right hand (for the right eye) on the eyebrow to support the head, place the second finger on the eyelid and give quick rotary motions with moderate pressure. The finger may change positions so as to reach all parts of the eyelid, but it is chiefly the eyeball that it is desired to massage. This can be reached with the finger near the edge of the lid. In this operation great care must be taken to avoid undue pressure on the eyeball. For vibration to the eyeballs the operator stands behind the patient and places one or two fingers on each closed eye, tenses his arm muscles and gives rapid vibratory movements. The distance covered by the fingers necessarily is slight in this movement. A good eye vibration is also secured by striking the finger on the closed eyelid with the ends of the first and second fingers, having these flexed and rapidly tapping with and lifting them alternately.

Eye Massage

Nose. In massage of the nose the operator stands at the side of the reclining patient and gives slow, moderately firm pressure in downward strokes with an index finger on each side of the nose, turning out slightly at the nasal wings to the cheeks. The skin is stretched and the massage movements given crosswise when scars are to be treated on or near the nose. Small circular movements may be given at the junction of nostrils and cheeks.

**Nose
Massage**

**Massage
of the
Ovaries**

Ovaries. Massage of the ovaries is sometimes advocated by gynecologists for the relief of congestion, neuralgia, adhesions and other conditions. The patient lies on her back, as for abdominal massage. The operator stands facing the patient's face, her hands on the sides of the patient's lower abdomen, near the prominent anterior bony projections of the iliac bones (the iliac crests). Stroking is done with both hands at the same time (in opposite directions) from center to sides of the lower abdomen. Friction is done with the finger-tips in the same direction. Moderate manipulation may also be done with the finger-tips about the ovarian region. During the massage the patient should breathe deeply and regularly.

**Massage of
the Prostate**

Prostate. Massage of the prostate is given much more frequently than that of the uterus. There is an internal and an external method, but the external method is rarely used. It is much less direct than the internal method. For the internal method the patient may either stand at the end of a table and lean forward until the elbows rest on the table, or lie on the right side (for a right-handed operator), with the knees somewhat bent, the upper knee more than the lower. The operator inserts the index finger (sometimes the long finger or both fingers) into the patient's rectum and gives downward stroking and circular massage movements.

Another method, a combination of internal and external, is similar to the above, except that the finger or fingers in the rectum serve only to secure the prostate, which then is manipulated through the abdomen with the thumb and fingers of the other hand. The inserted finger should be covered with a rubber finger-cot, or a rubber glove should be worn, the inserted finger being well lubricated. In the external method the patient lies on the back with the knees drawn up (as for abdominal massage), holding the sexual organs up on the abdomen. The operator strokes and frictions the perineum. This has only a slight and indirect effect upon the prostate. In every case the bladder should be emptied before the treatment begins.

**Massage of
the Uterus**

Uterus. Massage of the uterus is often given for its tonic effects. It may be done externally, entirely or partly internally and partly externally. In external massage the patient lies on the back, as for abdominal massage. The first move-

ments in this massage are manipulations of a circular nature, clockwise, to the center of the lower abdomen. Stroking and friction terminate the massage, these movements to be in the same direction but covering a somewhat larger area of the lower abdomen. The bladder should be emptied before the massage. The final procedure of this treatment consists in beating the lower part of the back alternately with the two hands. If this treatment (massage and percussion) follows massage of the entire abdomen for relieving the bowels, better results upon the uterus will be secured.

In the internal-external method, one or two fingers are inserted into the rectum or the vagina to support the uterus while manipulation is done with the fingers of the other hand upon the abdomen. The manipulations must be gentle, yet with gradually increasing force and the uterus should be firmly supported. This is not a treatment to be given without a thorough knowledge of the technic and of the internal parts and their relations; but when properly done it is beneficial in some abnormal conditions, among the most important of which are adhesions and displacements.

**External
Uterus
Massage**

Vibration may be given to the uterus or the prostate, especially the latter, by manual means, though it is difficult. A special applicator may be attached to the portable vibrator for direct vibration through the rectum. Such treatment properly administered is often a considerable benefit.

The *application* of massage need not be discussed here. In a great number of abnormal conditions massage, either general or local, is of benefit, sometimes of great benefit—as, for instance, in infantile paralysis, insomnia, neurasthenia, writer's cramp and similar affections, chorea, neuralgia and chronic neuritis, dyspepsia, constipation, lumbago, locomotor ataxia and sprains. In this and the following volume the various diseases are discussed and suitable treatment for them suggested, massage being mentioned when it is known to be of benefit, and special instructions given when considered necessary in connection with its administration.

FIRST AID IN ACCIDENTS AND DISEASE

Section 5

IN CASES of accident or sudden illness, unless professional attention is instantly obtainable, it often happens that intelligent and prompt action on the part of the layman may be necessary. Many minutes, perhaps several hours, may elapse before it is possible to secure professional aid; meantime something should be done to ease the victim, relieve his suffering, conserve his vitality and perhaps his blood supply. Ignorance of the right thing to do at such times may mean the forfeiting of his life.

The Need of
First Aid
Knowledge

A common misconception is that first aid involves a considerable knowledge of chemical stimulants and drugs. In the majority of cases, however, as good or better results can be obtained by methods easily mastered by the layman. These are much less likely to produce undesirable results.

Experi-
mental
Application

In studying these methods it is an excellent plan to visualize both the features of different cases and the employment by oneself of the various measures recommended; or, better still, to practice these measures on another person. Such experimental application is particularly valuable in learning the technique of bandaging and stopping the flow of blood. In the latter case the practice would consist merely in locating the points at which the arteries should be compressed to control hemorrhage. This manner of learning the various measures has many advantages: it makes one so familiar with the necessary procedure that when the emergency actually arises one's response is surer and more effective than it could be otherwise; one can be calm and confident in manner, both essential qualities to success. Quick action is necessary at such times, but one must avoid the appearance of haste and excitement. Confidence in the attendant allays fear and apprehension on the part of the patient and others. When these are absent the patient is much less likely to suffer from nervous shock than where confidence is encouraged.

As soon as a case is recognized as serious a physician should be summoned. This should be done by one who can give such an adequate account that the physician will have some idea of the nature of the case before leaving his office, and thus bring the necessary equipment with him. The physician should be given the benefit of any doubt as to whether or not his services are necessary. They may not be, but it is much better to run the risk of calling him unnecessarily than to discover later that his services at the right time might have saved a life or prevented irreparable injury.

Calling a
Physician

As more or less space is necessary for satisfactory work and as the patient requires an abundance of fresh air, a considerable area must be cleared around the patient for these purposes. At the same time anyone giving vent to expressions of grief or excitement must be silenced. Every factor of the immediate surroundings should be observed, together with the appearance, posture and clothing of the patient, in an effort to determine the cause and nature of the accident and the probable degree of damage done.

The first thing is to make the patient comfortable, preferably placing him on his back, his head being raised slightly unless he is in a faint or a collapse, bleeding from the head, or vomiting. In placing the arms and legs in comfortable positions, one must be particularly slow and gentle, especially in case of broken bones. Any foreign substance in the mouth should be removed and all constricting garments, such as collars, belts, waistbands and shoes, should be loosened. If there is bleeding, prompt measures should be taken to control it. Turning his head to one side will often aid in making the patient vomit.

Procedure in
First Aid

In the majority of cases the first aid measures given in the following pages will be sufficient. Most of them may be called natural measures. To make them available for quick and ready reference, the various subjects treated are arranged alphabetically.

ABDOMEN.—An “all-gone” feeling in the abdomen is a frequent initial symptom of sunstroke; it is followed by nausea, general weakness and faintness. (See *Sunstroke*.)

ABDOMEN, WOUNDS OF.—Abdominal wounds may extend into the abdominal cavity, or into one or more of the abdominal

Abdominal
Wounds

organs, or they may be associated with protrusion or extrusion of one or more of the organs. All abdominal wounds of any appreciable severity are accompanied by shock, vomiting and retching, abdominal pain, and frequently by hemorrhage. If an internal organ is ruptured (kidney, liver, intestine), there will be faintness, cold and clammy skin, weak and rapid pulse and restlessness. In none of these cases should anything be given through the mouth. When the wound extends merely into the abdominal cavity, all the first aid treatment necessary is to cleanse the exterior and apply a sterile dressing. If any organs extrude, they should be washed with boiled water cooled until just warm, and then covered with sterile cloths kept wet with the same sterile water. If desired, a teaspoonful of table-salt may be added to each pint of the water. Quiet is necessary in all these cases. External heat is helpful in minimizing shock and maintaining circulation.

ABRASIONS.—An abrasion is a superficial wound in which a portion of the surface has been brushed or scraped away or destroyed. Abrasions are sometimes called “brush burns.” Rapid glancing friction, as by a sliding fall or by a rope passing rapidly through the hand, is the usual cause. A stinging, burning pain and the removal of the superficial layers of the skin are experienced at the point of injury. These leave a raw surface with a straw-colored fluid or small beads of blood. These wounds should be cleansed with warm, boiled water, with or without salt added. Any foreign particles should be removed with moist sterile gauze, or a sterile needle or forceps. A boric-acid solution may be used to wash the wound, the solution being made by adding boric acid to water until it takes up no more and a deposit is left at the bottom of the vessel. The salt or boric-acid solution should trickle over the wound, from the sterile gauze or cotton. In dressing the wound one should use clean gauze or cotton, which may have on the surface coming in contact with the skin a mildly antiseptic ointment, such as carbolyzed vaseline or boric-acid ointment. When re-dressed the affected part should be exposed to sunlight, especially if any infection appears to be developing, as shown by increased redness about the margins, or if minute areas of pus begin to form over the wound itself. As air and sunshine have a healing effect, no wound of this nature

should be so dressed as to exclude all air, except for the first day or two, by one of the ointments suggested. The air should often be "filtered" through gauze, but the sunshine should be given direct to the bare wound and not through gauze or glass.

ACID BURNS.—Strong acids, such as carbolic, nitric and sulphuric, cause deep burns that destroy much tissue. The first step in treatment is to remove the acid, preferably by drenching the affected part, again and again, with water. The part should then be washed with a soda solution, one teaspoonful of bicarbonate of soda to the half-pint (eight-ounce drinking glass) of water; or with dilute ammonia water. See *Burns and Scalds* for further treatment.

Acid Burns

ACID POISONS, ANTIDOTES FOR.—Give no emetic, but give immediately alkaline drinks, such as baking-soda, chalk, lime, plaster, soap or tooth-powder, in water. A teaspoonful of aromatic spirits of ammonia in a glass of water is excellent.

ADHESIVE PLASTER.—Various kinds of adhesive plaster are on the market. Any of them will be satisfactory for ordinary use, but for use directly on a wound a sterile plaster should be obtained. As a rule it is not advisable to put any adhesive plaster over an open wound, since it is impervious to the air; but if moderate bleeding is allowed to take place first a minor incised wound may safely be closed with adhesive tape. All such tape should be kept in its container except when in use.

The Use of
Adhesive
Tape

The skin must be warm and dry before the tape will adhere satisfactorily. If used on a hairy part of the body the hair should first be shaved or closely clipped. Oily skin should be prepared by bathing with soap and water. It is often advisable to use alcohol or benzine in addition to help in removing the oil and to hasten drying. The skin should not be wrinkled beneath the tape, except in an occasional case of umbilical hernia in an infant, in which the overlapping of the skin helps to hold the hernia until the muscles grow sufficiently strong to need no support.

Adhesive tape may be removed easily by touching the under side with alcohol, ether or gasoline, after pulling up one corner or end. By pulling the tape back on itself while pressing down on the skin beneath, it may be removed without discom-

fort. It may be taken off quickly, though with some pain, by jerking it suddenly back upon itself; but this method should not be used when the adhesive has been applied over an open sore, or it will break up the protective granulations and re-open the wound.

Alcohol

ALCOHOL.—Alcohol makes a good antiseptic for the skin and also for instruments, the required strength in both cases being between 70 and 95 per cent. It is too irritating for use in wounds.

ALCOHOL IN EMERGENCIES.—Whereas alcohol in some form, chiefly whisky or brandy, was formerly administered in all sorts of emergencies, it is used but little nowadays and then with caution. While it may be true that small doses of alcohol may be administered with some temporary benefit in cases of fainting, threatened heart-failure, or severe chill, more harm than good has been done by its use. By sending the blood to the skin, alcohol dissipates internal heat, thus making the body far more susceptible to cold than otherwise and, therefore, to freezing under severe exposure. Alcohol should never be used when there is a hemorrhage or the slightest danger of one. Though stimulating in case of faintness, if given when faintness is due to loss of blood it may bring on a renewal of the hemorrhage. In case of apoplexy, which is caused by bleeding within the brain, a single dose of alcohol might prove fatal. In short, there are few if any cases in which alcohol need be considered.

ALCOHOLISM.—This term is more comprehensive than *inebriety*. It includes both the immediate and the remote effects of alcoholic indulgence. *Acute Alcoholism* is intoxication, or drunkenness, a temporary muscular incoordination and mental disturbance caused by the rapid absorption of large amounts of alcohol. The time may come when its characteristic symptoms will not be generally known, but at the present time these are too familiar to require enumeration. In an occasional case a form of mania develops in which the drunken person is violent and dangerous to others, even committing murderous assaults on anyone against whom he has a real or fancied grievance, or sometimes with no grievance at all.

Acute Alcoholism, or Intoxica- tion

Acute alcoholism calls for radical eliminative measures, together with measures to relieve cerebral congestion. One

excellent procedure is the sweating pack with cold compresses about the head and the back of the neck, followed by the wet-sheet rub; another is the cold shower and the enema of fairly cold water, followed by a short cold douche or "pour" to the spine and the lower part of the chest. These measures may be repeated every hour or two until the toxic effects of the alcohol have disappeared. If the person is conscious, an emetic may be given to empty the stomach as quickly as possible. Lavage is recommended when the person is unconscious, though it is often inconvenient. (See *Emetics*; also *Lavage*, Vol. VIII, Sec. 7.) When the victim is conscious, effort should be made to have him drink water freely, either hot or cold and only a small amount at a time. Because of the nervousness often present in these cases, the prolonged neutral bath will usually be of value as a sedative agent. But so long as the toxic symptoms remain a more actively eliminative procedure will be preferable, such as the hot tub bath, shower, steam, hot-air or electric-light bath, with a cold shower or other cold application given for a short time immediately after. Massage will be beneficial after these applications, but probably will not be necessary, good friction, by towel, brush or hands, being usually sufficient.

Sweating
Pack for
Intoxication

Chronic Alcoholism results from prolonged indulgence in alcoholic beverages, though most of those who are suffering from this affection are not really drunkards. Many of them, in fact, consider themselves to be only reasonably moderate drinkers. The chief effect of chronic alcoholism is upon the nervous and the gastroenteric systems. Gastric catarrh always develops and the liver, kidneys and blood-vessels undergo changes in structure. This condition in itself is not one in which first aid treatment is necessary, but *delirium tremens*, an acute insanity caused by poisoning from the direct toxic effect of alcohol, plus failure of the eliminative function of the kidneys, is a condition which calls for emergency treatment.

Delirium
Tremens

Drugs do little, if any, good, so are rarely employed. Because of the nature of the affection the patient may either exhaust himself, or do injury to himself or to others, so this must be prevented. The extreme cerebral excitement can be controlled best by a short, hot immersion bath (five minutes), followed by the sweating, wet-sheet pack; or by the prolonged

hot bath, lasting for hours at a time, but gradually lowering to 98 degrees, after the first 15 minutes at 105 to 110 degrees. Cold compresses, but not ice-bags, should be applied to the head, and these should be changed frequently during the course of the bath. The hot-blanket pack may be used if either of the above baths cannot be secured. But when any pack is given several attendants may be necessary, as the patient may violently resist. Full hot enemas (three to five pints) should be given two or three times a day, especially if the patient will not drink water freely. An emetic may be given to wash the stomach, although, this condition often developing after the stomach has been emptied through absorption, emetics or lavage will be of comparatively little value. The hot baths should be given daily, lasting one or two hours at a time and followed by the cold shower, douche or affusion, with no food but fruit for two or three days or until danger is past and real hunger develops. A cold compress over the heart region between baths will improve cardiac action, and fomentations over the abdomen, if given immediately before meals, will ease gastric irritation and improve the appetite. These fomentations may continue for fifteen or twenty minutes, and may be repeated every two or three hours. The heating compress should be kept over the abdomen between fomentations, being changed every forty to sixty minutes. (See *Fomentations*, also *Heating Compress*, under *Compresses*, Vol. VI, Sec. 2.)

**Alkali Burns
and Poisons**

ALKALI BURNS.—Strong alkalies, such as caustic soda, caustic potash or lye and strong ammonia, may produce severe burns. Some cleansing powders also may have this effect. These should be removed immediately by first drenching the affected part with water and then washing it with some weak acid, such as dilute lemon juice or vinegar; after which the injury should be treated like any other burn. (See *Burns*.)

ALKALI POISONS, ANTIDOTES FOR.—Give no emetic, but give dilute acids, such as dilute vinegar, lemon juice or acetic acid, or milk, cream or oils.

AMMONIA.—Aromatic spirits of ammonia is a popular stimulant. When used cautiously and in suitable cases it is valuable, as it is free from harmful effects. It may be used internally, in doses of one-half to one teaspoonful in one-third

to one glass of water, or for inhalation on a sponge or a cloth. It is useful in fainting, headaches, nervousness and weak heart-action. *Smelling-salts* or sal ammoniac is also an inhalation stimulant. *Hartshorn*, or water of ammonia, is a strong stimulant. When passed before the nostrils it is helpful in fainting, shock and collapse, as it stimulates the breathing and the heart. While to be used only in emergencies, these ammonia preparations may be more convenient than other means of aiding a patient, so it is well to keep one of them on hand.

Hartshorn

ANIMATION, SUSPENDED.—This is a temporary condition of apparent death, with suspension of breathing. It may be due to electric shock, severe injury with profound nervous shock, gas poisoning and some other causes. Aside from loosening or removing any tight clothing, providing an abundance of fresh air, using either the Schaefer (prone) method or the Sylvester method of artificial respiration, giving friction of the extremities in the direction of the heart and applying external heat to the body, there is not much a layman can do in these cases. Call the doctor promptly.

Suspended Animation

ANKLE, FRACTURE OF.—See *Fractures*.

ANTIDOTES FOR POISONS.—See *Poisons*; also *Acid Poisons*, *Antidotes for*, and *Alkali Poisons*, *Antidotes for*.

ANTISEPTICS.—Antiseptics are substances which hinder the growth and prevent the action of germs of fermentation, decomposition or disease. All disinfectants and germicides are antiseptic because they kill bacteria or micro-organisms; but all antiseptics are not disinfectants, for some merely inhibit development without destroying the bacteria. Boracic acid, for instance, is an antiseptic, but not a germicide or a disinfectant; while carbolic acid is a sufficiently strong antiseptic to be a germicide. All these agents are used to hinder growth of bacteria *outside* the body, such inhibition or destruction of germs being called antisepsis, disinfection or sterilization. The latter two terms really mean the complete destruction of all germs present. Sometimes inhibition is all that is necessary. For example, a mild antiseptic to retard or prevent bacterial growth would be much better in the case of an ulcer than a stronger application which, while destroying the germs, would at the same time irritate or injure the already damaged tissues. (See *Relation of Sanitation and Hygiene to Health*, Vol. I, Sec. 6.)

Antiseptics
After
Accidents

Often in case of accidents it is advisable to use some antiseptic to make sure that deadly or trouble-producing organisms which have entered the tissues are not retained there, as the body should not have to fight a horde of unfriendly germs while repairing the injury. Many people have not enough vitality at any time to resist a considerable influx of these intruders. If one's body is highly toxemic at the time of receiving a wound and no steps are taken immediately to cleanse the blood-stream, infection may take place in spite of the use of antiseptics; but that possibility is only an additional argument to use antiseptics in "dirty" wounds. Their use is merely an extra precaution. Often it is the only precaution that one giving first aid can take, because of having no further control over the patient.

Mechanical cleansing, as by scrubbing, shaving and washing with soap and water, is considered by medical doctors as insufficient to prevent infection. Exponents of natural methods, however, believe that if this is done properly and the blood-stream is free from an excess of toxins and poisons, infection will be extremely unlikely to take place. If convenient, boiled water may be used for this washing.

Thermal disinfection (by boiling or exposure to hot air, as in baking), cannot be applied to the body; but it is an excellent means, in fact the best means, of sterilizing instruments or dressings.

Chemical
Antisepsis

Chemical antisepsis is generally considered as the only antisepsis for the skin and wounds, but in a normal state the blood itself serves as a thoroughly efficient antiseptic. Few people, however, are in a normal state of health, and even these few often insist, out of habit, on the use of antiseptics when injured. For this reason, some of the chemical antiseptics are here listed.

Alcohol is a good antiseptic for the skin, in strength from 70 to 95 per cent., though when used in wounds it is irritating. It is excellent as a sterilizer of instruments. If a needle to be used to extract a splinter, or for other such purpose, is dipped in alcohol and then set aflame, it will be thoroughly and quickly sterilized. (See also *Alcohol*.) *Tincture of iodine*, a universal antiseptic, may be used full strength on the skin or to swab a wound; but it will blister if applied to a moist skin. *Hydrogen*

peroxide, if kept in fresh supply in a colored bottle, is an excellent mild antiseptic, but should not be used in closed cavities or on exposed bone. It is used full strength. *Lysol* and numerous other prepared antiseptics in bottles are valuable. They are to be used according to instructions supplied. *Zonite* is one of these excellent antiseptics. *Boric* (boracic) *acid*, used in saturated solution, is an excellent mild antiseptic. It may be used in any wound and in any part of the body—eyes, ears, nose, throat and so forth. *Potassium permanganate* and *bichloride of mercury* (corrosive sublimate) are effective antiseptics, but too dangerous to have around the average home. They and lysol are powerful, so must be properly diluted.

Potassium
Perman-
ganate

APOPLEXY.—This is the same condition as the “paralytic stroke,” arising from the rupture of a blood-vessel in the brain, with pressure of a blood-clot on that organ. There may be forewarning symptoms of headache or fullness of the head or the blood-vessels, though the stroke often appears unannounced. Unconsciousness may come either so suddenly as to cause the patient to fall, or less quickly, but it never comes slowly. The face is flushed, nearly purple; the breathing is labored and snoring, the pulse slow and strong; the eyeballs are insensible to touch and the pupils dilated, often unequally so; the paralyzed side of the face is blank and expressionless, the opposite side being contracted, while the arm and the leg on this side are limp and paralyzed. Occasionally twitchings are noticeable. The patient should be placed on his back, tight neck-bands, if any, should be loosened, the head of the bed should be raised six inches, and head and shoulders raised still further. Cold compresses or an ice-bag over a wet towel should then be applied to the head and moderate heat may be given to the feet. No stimulants should be used in these cases; but as soon as the patient can swallow, moderately hot water may be given him to drink, a small amount at a time. A full hot enema may be administered after the above measures have been taken, the patient lying in the position described, except for the change necessary for the adjustment of a bed-pan when there is need to use it. See Paralysis, in Volume VIII, for treatment.

Apoplexy

ARM, FRACTURE OF.—See *Fractures*.

Artificial
Respiration

ARTIFICIAL RESPIRATION.—Several different methods are used for producing artificial respiration. It is not necessary for anyone to master all of them. Only two common methods are satisfactory for all cases the layman is likely to meet. These are of great value in cases of suffocation by gases or vapors, of drowning, shock or electric shock and in other conditions of suspended animation in which death might result if breathing were not brought about artificially. Anyone can easily learn to give artificial respiration, but the use of mechanical appliances requires special training. The manual method, moreover, produces a more natural breathing action than the mechanical contrivances, which are often not procurable for immediate use.

Schaefer's Method (the prone method) is one of the simplest and best methods of artificial respiration. It is the best method in cases of drowning, as it facilitates the escape of fluids through the mouth, whether coming from the lungs or the stomach. The tongue should be pulled forward and the face turned so the mouth and the nostrils are unobstructed. The patient is placed face down with his arms outward and



The Schaefer method of resuscitation after submersion. In the first position, here shown, a roll of clothing or some such round object as a barrel, is placed under the abdomen, with the head at a lower level. Pressure is applied, as illustrated, to assist in expelling water from the lungs. The arms preferably should be so placed that the forearms extend in the direction of the head, not as here shown.

the forearms pointing in the direction of the head, or one wrist or forearm may be placed under the forehead to raise the nose and mouth slightly above the ground. All clothing should be loosened. The attendant should kneel, facing ahead, his knees astride the patient's hips. He should place his hands, one on each side, flat on the patient's back at the lower chest. He should next lean forward gradually, so a firm but not violent pressure will be exerted upon the patient's chest by his hands. Then, with a gentle push he must throw his weight back on his own knees, releasing the pressure on the patient's chest, but keeping his hands in position. This movement is repeated rhythmically, twelve to fifteen times a minute. When used for children the movements should be about twenty a minute. Considerable care is necessary to avoid giving too much pressure. In fact, one need not change the position of his body when working on a child, simply using the arms without the aid of the body weight.

Sylvester's Method is a supine method, the patient lying on the back. There should be a roll of clothing or a pillow under the shoulders in such a way as to expand the chest, head backward. In this position the tongue must be prevented from interfering. This may be done by drawing the

**Sylvester's
Method of
Artificial
Respiration**



The second stage of the Schaefer method is here shown. After expelling water, the elevation beneath abdomen may be removed. The face downward position, with mouth free and wide open, is maintained. Breathing is stimulated by pressing firmly upon the part of body under the shoulders to expel the air from lungs and then drawing hands down and away to permit the inflation of lungs. This movement is continued until breathing and consciousness are reestablished or until there are definite signs that resuscitation is beyond hope.

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part forward with a handkerchief and securing it with a rubber band, passing about it and the chin; or by tying a rolled handkerchief over it, crossing the handkerchief under the chin, then tying it to the back of the neck. The operator proceeds as follows:

Kneel astride the unconscious person or with your knees at the top of the head. Reach down and grasp his arms near the wrists, then lean forward and press his arms downward across the lower chest to secure expiration before making the inspiration movement. This should always be done, in order to free the lungs as much as possible. Now give a slight push upon the arms and the chest, then shift your weight back on your knees, bringing the patient's arms slowly outward and upward over his head, turning the palms up. Hold this position while steadily pulling on the arms one second, for full chest expansion. Then bend the patient's elbows, shift your weight forward, crossing the patient's arms at the wrists and pressing again on the chest. Repeat these movements fifteen or sixteen times a minute. The procedure should be kept up for an hour or two if there is a heart-beat, but this cannot be judged by the pulse, for the heart may be beating without any noticeable pulse. The same procedure may be employed with the patient lying on a table having its foot end raised six inches or more.

Artificial
Respiration,
Technique



Artificial respiration, Sylvester method. Patient's arms extended above the head drawing up the ribs and expanding lungs, causing air to enter. Each complete respiration covers four seconds (four slow counts).

ASPHYXIA.—Asphyxia, suffocation, or smothering is a condition of unconsciousness resulting from inability to get enough oxygen into the lungs. This may result from one of several causes: The lungs being filled with water, blood or gas; obstruction in the windpipe by foreign bodies, as in choking; tumor pressure or swelling that closes the windpipe; damage to the chest that prevents respiration, as in crushing injuries; chest wounds that cause collapse of the lungs; paralysis from drugs or injuries; and brain tumors.

Get the patient out of any causative environment and into the fresh air at once and reestablish breathing by artificial respiration. Next, restore warmth by artificial means and promote normal circulation of the blood. If someone is at hand to give friction or apply artificial heat to the lower extremities while the artificial respiration is being given, better results will be secured or good results will come more quickly. If two assistants are available, send one for a doctor and the other for blankets.

**First Aid in
Asphyxia**



Artificial respiration, Sylvester method. Patient's arms drawn down and pressed against sides, thus compressing the ribs and expelling air from the lungs. Count four. Repeat as long as there is even the faintest hope of resuscitation.

It is always *important* that the respiratory passages be freed of mucus, froth, water or vomited matter; otherwise these act not only as mechanical obstructions to complete breathing but may be drawn into the windpipe or bronchial tubes where, if not causing any immediate interference with breathing, they may give rise to irritation, inflammation or infection. With the patient in the prone position (face down), with a roll of clothing under the abdomen, the body may be manipulated forward and backward over the roll until the stomach and lungs are largely relieved of any water they may contain (in case of drowning) and the mouth and throat emptied. (See *Drowning* for further methods of accomplishing this clearance.)

One should be prepared to continue artificial respiration for a long time. For this reason, as well as because nearly the normal rhythm of breathing is best, one should avoid the inclination to work too rapidly. Energy and endurance should be conserved as much as possible, for they will probably be needed before the patient is safe. As he begins to recover there will be spasmodic gasps or breathing attempts, the color of his lips will change from slate-blue to black and then to pink, and his pulse will return. In addition to the friction and heat, when it is possible to provide it, the patient should be given, at intervals, as soon as he can swallow, a little hot water, hot broth or soup, or even a little coffee, though the coffee should usually be avoided, as it may delay the first sleep, which is needed after such an experience.

ASPHYXIATION BY GAS OR SMOKE requires artificial respiration as quickly as it can be given upon removal of the victim to the fresh air. A handkerchief soaking wet with plain water placed over the mouth and nostrils will permit one to enter a smoke-filled room for a sufficient time to remove a victim of suffocation. If someone has been asphyxiated by illuminating gas, the odor can be detected immediately upon entering the room or opening a door or a window. Never breathe in upon going into a gas-filled room, and above all things do not strike a match to furnish light if it is dark. Work in the dark or use an electric flashlight, or wait until the room has cleared after opening doors and windows. Before entering the room take several deep breaths of fresh air, exhaling deeply each time;

then, with a full breath held tightly, go in the room and open the windows, leaving the door open also, unless there is an open flame nearby. By thrusting the head far out of an open window a deep breath of fresh air may be taken, thus enabling one to work longer if necessary, perhaps while searching for and turning off any open gas-jets. Little time should be lost in these duties, however, for the victim must be removed to fresh air as speedily as possible. If one is strong one may carry him out without waiting for the atmosphere to clear somewhat; but by using the proper method, as given later under *Carrying a Patient*, a person slight in weight himself may remove a heavy one.

The gas companies of many cities issue booklets giving instructions for first aid in poisoning by illuminating gas. These supply the very latest information on the subject. (See also *Choking, Drowning and Strangulation.*)

BACK, BROKEN.—Fracture of the spine usually occurs from some accident that forces the patient's body too far forward or backward, or in which the patient falls across a non-yielding object. Loss of sensation and motion below the level of the injury is the chief symptom. Call the doctor and leave the patient undisturbed, unless moving him is necessary, only covering him for warmth. If moving is absolutely necessary, it should be done with the greatest care, so as not to bend the spine at the break, for this might cause much greater injury to the spinal cord or the nerves. Gently slide the patient on a rigid litter, then to a firm bed. Then apply external heat by any convenient method. Since sensation is lost, great care is necessary not to provide heat in any degree or manner that will be likely to cause burning.

**Broken
Back**

BACK, STRAINED.—Often when lifting or straining, sometimes even from mere movements of the body, or from jars or jolts while riding, as well as from falls, the back becomes "strained." This may be a true muscular strain, or it may involve the spine. The discomfort may be slight or incapacitating, and of short or long duration. Rest is one of the best remedies for muscular strain, though other measures often relieve the condition much more quickly than rest alone. Nothing, aside from rest, equals heat and massage for this trouble. The heat may be supplied by any convenient means, but radi-

**Strained
Back**

ant light and heat, or infra-red heat, will be best. Fomentations are often equally effective, though less convenient. The massage should be gentle at first, then as the pain reduces it may be progressively deeper and more vigorous, though care should always be taken to avoid straining the parts further by too vigorous movements. Exercise that puts a slight pull upon the affected muscles will benefit most cases; but this also must not be too strenuous. Traction is sometimes useful, but perhaps should be avoided in most cases, except for what the patient may give to himself by exercises. The same measures may suffice for strains involving the spine—in reality, spinal muscles and ligaments (deep structures) rather than the spinal vertebrae themselves. However, specific spinal manipulations, by the osteopathic, naprapathic or chiropractic methods or Swedish manipulations, will probably be more quickly and completely effective. Diathermia may be considered in most of these cases, especially muscular strains. If one cannot secure the rest that should be taken for a time, adhesive taping may sometimes be necessary.

BANDAGING.—Bandages are of three general types: the triangle bandage, the tailed bandage and the roller bandage. All are used to hold dressings in place, to aid in supporting a part, and to give pressure to stop or prevent bleeding.

The Triangle Bandage is far superior to the other bandages for general first aid work. Except for giving uniform pressure it will do all that the other bandages will do, and its application is much easier to learn. It may be made from any available square piece of cloth merely by folding the cloth diagonally. Twenty to twenty-four inches square is the usual size; but there should be bandages of various sizes. A “cravat” bandage may be made by repeatedly folding in the direction of the original fold, thus making a narrow bandage. The triangle bandage may be made to fit any part of the body. It will answer most purposes of a bandage until professional or surgical help is secured. After being properly placed about the part it may be secured by simply tying the ends, or by pinning with safety-pins.

It is a good plan to have on hand in every household a few bandages ready for emergencies. Old sheeting material will serve excellently. Triangle bandages of various sizes may

be kept on hand, together with roller bandages. Such aids should always be ready in some convenient place where one or more people are exposed to machinery, or to injury from accidents of various kinds.

Slings are needed in cases of fracture of the arm at any point, or of the shoulder or the collar-bone. See illustrations on pages 3024-3025 for application. In all cases the arm is held at the side with the elbow bent at a right angle, the base of a large triangle passing around the wrist with its apex toward the elbow. The extremities are carried up, one in front and one behind the wrist, and tied behind the neck, the apex being pinned around the arm in front; or, if pressure cannot be permitted on the injured side, the anterior end is passed back between the injured arm and the body and tied to the extremity that passes over the other shoulder. If pressure is not permitted on the opposite shoulder, the latter extremity passes over the shoulder of the injured side and ties to the other, a smaller triangle or cravat bandage being tied about the neck and the shoulder triangle to keep the latter from slipping from the shoulder.

Slings

The Shoulder Bandage is made by placing the base of a large triangle at the nape of the neck, the apex dropping down the center of the back, the extremities being crossed over the chest, carried beneath the armpits and tied at the back, the apex then being turned up and pinned. *The Single-Shoulder Triangle* is applied by placing the center of the base or long side over the shoulder-point with the apex down over the deltoid and upper-arm, passing the ends around to cross under the armpit and tying over the apex and around the arm.

The Single-
Shoulder
Triangle

The Head Triangle requires a thirty-inch base, the center of which is placed just above the eyebrow or just below the most prominent part of the head at the back, the apex going over the head to hang at the back or over the bridge of the nose, as the case may be. The ends are drawn around the head above the ears and knotted at the back (or the forehead), the apex being then turned up and pinned.

The Shoulder-Chest Triangle is applied with the apex over the shoulder, the base around the affected arm. The ends are carried around the chest and tied, the apex then drawn over the shoulder, tucked in at one side and pinned.

The Shoulder-
Chest
Triangle

The Hand Triangle

The Hand Triangle is applied by placing the base or long side on the wrist (palm side), the apex being carried around the ends of the finger and up to the back of the wrist. The ends pass in different directions around the wrist and tie over the apex.

The Breech Triangle. With the apex of the triangle hanging down in front, the base at the waist, bring the ends around the waist and fasten at the back. The apex passes down and back between the thighs and is then brought up in the rear and secured to the tied ends.

The Knee Triangle

The Knee Triangle is applied by having the apex hanging down over the knee, the base above the knee-cap, the ends passing around the knee to the rear, crossing, then being brought forward below the knee-cap and tied over the apex.

The Foot Triangle. With the base of the triangle above the heel at the back and the apex brought under the sole and over the tops of the toes and the instep to the front of the ankle, bring the ends forward around the ankle and tie over the apex.

Cravat Bandages

Cravats, made by folding a triangle bandage upon itself, are easily applied. They may be used as simple bandages or to hold dressings, as wrist-slings or as tourniquets. (See *Hemorrhage*.)

Tailed Bandages have four tails or narrow ends. They



Roller bandage applied to arm, including elbow-joint.

must be of different sizes and lengths, according to where they are to be used. Such a bandage for the chin, for instance, requires a strip (of muslin, gauze or linen) two-and-a-half inches wide by two feet or more in length.

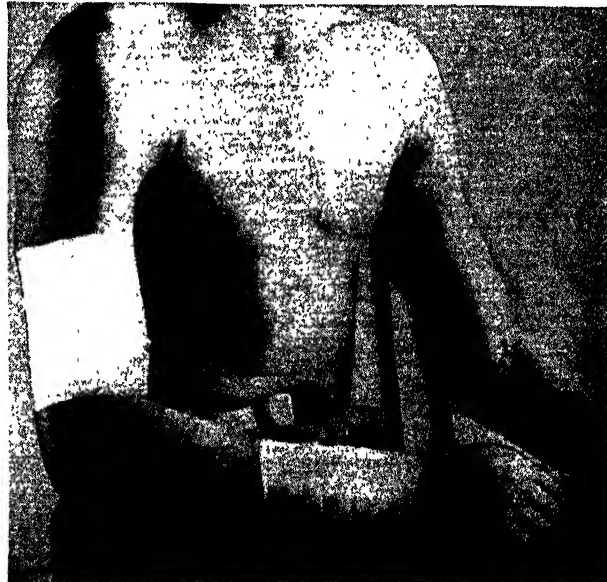
Tear down the middle of each end to one-quarter of the entire length; in the exact center remains a solid strip. The illustration shows the manner of application much better than words can indicate it.

The illustration of the *quadrangle bandage* shows another application. This requires a strip of muslin four or five inches wide and twenty-five to thirty inches long. Tear down the middle of each end to one-third the length; the center remains solid. This bandage may be used for the head (as in scalp injuries), the neck, the shoulder and the elbow.

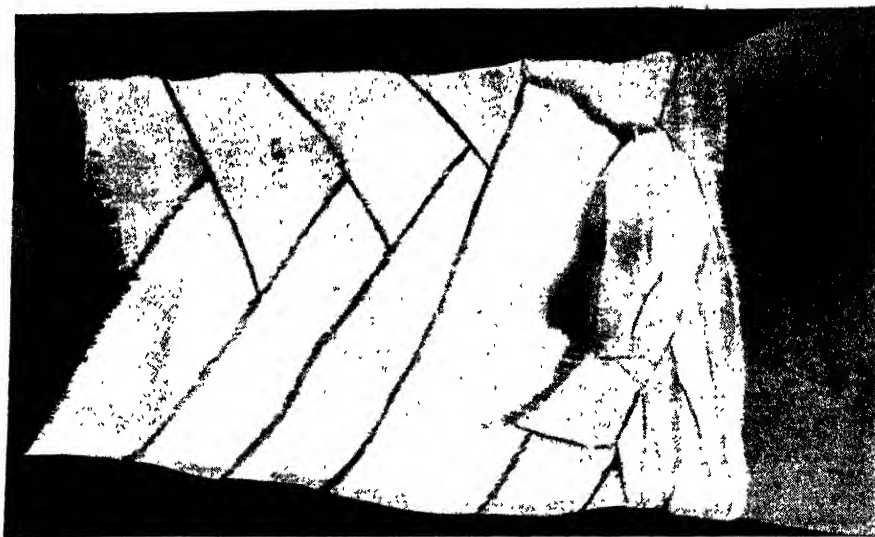
The Quad-
rangle Band-
age

Roller Bandages consist of suitable material of uniform width, of any required width and length, rolled continuously as a window-shade is rolled. These may be purchased in any width and length, already rolled and sterile; but if they are not at hand they may be made of old sheeting, tablecloths, gauze, linen, muslin or other handy material. If time permits such prearrangement, these materials should be washed and boiled, ironed, rolled ready for use and kept where they will not gather dust. Sometimes the roller bandage may be rolled from one end and applied by unrolling from one end (the usual and preferred way). It is then called a *single-roller*.

Occasionally it may be rolled from both ends and unrolled toward both ends, being then called a *double-roller*. When the latter is used one must start with the center, between the two rolls, unrolling toward each end and crossing



Roller bandage applied to arm and forearm.



The posterior reverse bandage. When properly applied it cannot slip down or loosen.

the bandage carefully on each side of the extremity of the body.

Several fundamental *turns* are used in bandaging. A *circular bandage* is one applied flat, round and round the same part. This can be used only when the part is cylindrical and of equal diameter for the width of the bandage. Most of the other bandages start with a turn or two of a simple circular bandage. A *spiral bandage* is one that is wound spirally, progressing along the part. A slow spiral is one that overlaps considerably, yet progresses, while a rapid spiral is one that progresses rapidly and does not overlap (except or unless on the return); in fact, the single layers may be some distance apart. A *simple spiral* bandage is applied flat, running up or down a limb and partly overlapping. A *spiral reverse* bandage is used on a part that rapidly increases in size, making it impossible to use a simple spiral. In order that the bandage may lie flat and yet cover the entire part, the “reverse” is used. Starting with a circular roll or two about the narrower section of the part to be bandaged, the bandage is applied in a slow spiral until the part becomes of such shape as to prevent a smooth parallel turn. At this point six inches or so of the bandage is unrolled, the thumb of the left hand is placed at the upper edge of the last layer and held firmly.

The Spiral Bandage



Hand and forearm bandaged with the posterior reverse bandage. This form of bandage is easily applied and will not loosen or slip when properly applied.

The pull upon the bandage with the right hand is relaxed, the latter is brought a little toward the left hand, the right palm being turned down at the same time, thus turning over (reversing) the bandage. The right hand is carried down in line with the limb, then diagonally to the right so as to bring the upper edge against the left thumb. The roller then is carried around the part, overlapping half the previous roll. A gentle pull will bring the roll into position, if held by the left fingers. The reversing process is repeated each time the roller is brought forward. This bandage should not be used unless actually needed.

In many locations, as the shoulder, groin, foot or hand, a *figure-of-8* bandage will be needed. In this the bandage is wound alternately around two sections, crossing somewhat like the lines of a figure 8. This is the bandage most frequently used, being preferable to the reverse spiral bandage, especially over a point. If several turns are made, each partially overlapping the preceding one, the bandage is called a *spica*.

The Figure-of-8 Bandage

Recurrent bandages are difficult to apply, but very useful, being employed over the scalp or the extremities, also over stumps when a member has been amputated or lost in accident. In these a circular fold is made, then the roller is carried from one side to the other over the end of the extremity or over the scalp, each layer being held at the circular fold and overlap-

Recurrent Bandages

ping the preceding fold; after the part has been covered in this way the entire bandage is secured by two or three circular folds.

The Essentials of a Bandage. As few turns as possible should be used in applying the bandage. These turns should be as parallel and at as nearly equal distances apart as possible. The bandage should be drawn tight enough to keep it in place, but care must be taken not to make it too tight. An extremity should be bandaged in the position in which it is to be carried. When possible the tips of fingers and toes should be left uncovered so they may be examined for indications of the effect of the bandage on the circulation. All surfaces of the bandage should be smooth. One skin surface should not be bandaged against another. Cotton or gauze should be inserted between such surfaces. The bandage should be loosened if from interference with circulation there develops coldness, whiteness or blueness, numbness, tingling or throbbing.

Bandaging,
General
Technique

In applying, hold the roller bandage in the more deft hand (usually the right), the roll being between the thumb and fingers and uppermost. Facing the patient, begin at the smaller diameter of the part to be bandaged, applying the free end of the bandage at this point, and securing it by two or three straight, overlapping turns. Then continue as required. The other end of the bandage may be secured by adhesive tape, a common pin, a safety-pin, or needle and thread; or it may be torn down far enough to leave sufficient long ends to be passed around the part in opposite directions and tied, these ends being first tied in a single knot to prevent further tearing.

It requires a little practice to apply a neat bandage, but often it will be perfectly effective even though it is not applied very neatly. There are regions to which a bandage can be applied only with difficulty unless training has been had in bandaging such parts. The head, the eye, the jaw, the fingers, are among these parts. But when one gets the "knack" of bandaging it is a very simple matter, just as is the trick of wrapping packages of various sizes and shapes in paper, using such folds as are required to provide the certainty of security and neatness.

BATHS IN EMERGENCIES.—The subject of *Hydrotherapy*, a large one, is amply covered elsewhere. Emergencies calling for first-aid care are included among the various conditions treated under the head *Water and Health*. (See Vol. VI, Sec. 2.)

BITES.—See *Wounds*, also *Stings and Insect Bites*.

BLEEDING.—See *Hemorrhage*, also *Wounds*.

BLISTERS.—See *Burns and Scalds*. Blisters usually result from second-degree burns, but may be produced by other causes. There is another form of blister—a treatment used as counterirritation for the relief of pain or inflammation. This usually is not needed as a first-aid treatment, hence will not be enlarged upon here. The creation of blisters by medication is used comparatively little these days, better results being secured by means of artificial sunlight and electricity.

BLOOD, COUGHING UP.—When coughed-up blood is bright and frothy it indicates hemorrhage from the lungs. If the blood is vomited and is dark (sometimes bright) it indicates bleeding into the stomach, gullet, mouth or nose. Sometimes blood appearing in the mouth is from a fractured skull, though often such a condition causes bleeding from the ear or the nose. (See *Hemorrhage and Fractures*.)

Coughing Up
Blood

BONES, BROKEN.—See *Fractures*.

BOWEL, BLEEDING FROM.—See *Hemorrhage*.

BRAIN, COMPRESSION OF.—This may result either from an injury crushing the skull upon the brain, or causing hemorrhage that compresses the brain. The symptoms of compression may immediately follow the injury, or they may develop after several minutes. If this delay occurs there will usually be headache, drowsiness and nausea. The patient lies down and falls asleep. Twitching of an extremity or of one side of the face may be observed, with paralysis appearing soon. The symptoms now are the same as those appearing in other cases immediately after the injury, namely, complete unconsciousness, pupils dilated and eyeballs insensible to touch, puffy and snoring respiration, slow and strong pulse, warm and flushed skin and complete loss of sensation and motion. Death takes place within a comparatively short time if relief is not given. The patient's head should be raised, clothing should be loosened, the wound dressed and an ice-cap or ice-bag, or very cold cloths, placed to the head, with a towel

Compression of the
Brain

between the ice-cap and the head. Nothing should be done to interfere with free bleeding. Nature will take care of this. No stimulants should be given. Do nothing more than advised until the doctor arrives.

Concussion
of the Brain

BRAIN, CONCUSSION OF.—In this condition there is no actual bruising or laceration of the brain, as in compression. Instead, the brain is merely severely shaken or jarred from a blow on the head or, perhaps, from a heavy fall upon the feet or the base of the spine. There may be only a temporary stunning, or unconsciousness may last several hours. While the symptoms of compression usually come on gradually, those of concussion come on immediately. In case of fracture of the skull there may first be symptoms of compression, often merging into those of concussion. However, there are various degrees of concussion. The mildest are marked by mental confusion, dizziness, nausea, weakness and recovery with a slight or moderate degree of headache. In a more severe case there will be unconsciousness, pale, cold, clammy skin, rapid and feeble pulse, subnormal temperature, and slow and unintelligible response when shaken and spoken to loudly. Within a few hours the patient becomes irritable and restless and vomits, recovering with headache and more or less fever. In the most severe degrees of concussion the symptoms are much worse. There is deep shock with complete unconsciousness and paralysis, followed sometimes by death.

In any concussion case, call a doctor at once. The patient should be placed on his back without elevation of the head, there should be complete rest and quiet, the room should be darkened if possible and external heat should be applied to the body. Cold should be applied to the head, immediately in slight cases; after an hour or so the ice-bag, in severe cases. No stimulants are to be given.

BROKEN BACK.—See *Back, Broken*.

BRUISES.—See *Contusions*.

"BRUSH BURNS."—See *Abrasions*.

BULLET WOUNDS.—See *Gunshot Wounds*, under *Wounds*.

BUMPS.—See *Contusions*.

BURNS AND SCALDS.—Burns may be caused by contact with fire or hot bodies, hot liquids, chemicals, electricity, and so forth, though when caused by moist heat they are called

scalds. Scalds do not need to be considered separately, for they may be of the same degrees as burns and require the same care and treatment. Some physicians divide burns (including scalds) into three classes, others into as many as six classes, but in any case according to severity. These degrees are: (1) Slight but painful redness, with eventual loss of only the most superficial skin-layers. (2) Blistering, without scar-formation upon healing. (3) Deep destruction and baking of the tissues, with pronounced, probably deforming scar-formation upon healing.

The treatment of burns of the first degree is simple, involving merely the application of a dusting powder, such as equal parts of starch and boric acid (boracic acid), or an oily dressing, such as carron oil (equal parts of lime-water and linseed or olive oil), or a wet dressing, such as sterile gauze wrung from warm boric-acid solution covered with oiled silk or other impervious material. When possible these burns should be exposed daily, after the initial pain has subsided, to sunlight or artificial sunlight. For burns of any degree, but especially third-degree burns, an excellent dressing is gauze soaked in a saturated solution of picric acid, an antiseptic tending to prevent suppuration, stimulating growth of new cells, and making re-dressing of the burn a matter of every two or three days rather than every day, as with the usual dressing. The dressings of burns may be loosened (for they usually stick) by immersing the injured part in a bath of warm boiled water in which has been dissolved a teaspoonful of either common salt or boracic acid to each pint.

Scalds in the mouth, quite common in children but occasionally occurring in adults, are very painful and sometimes serious. In such a case ice may be held in the mouth, or, if ice is not available, frequently renewed cold water may be used. After the first severe pain has subsided, a little oil may be held in the mouth to soothe the membrane.

Scalds in
the Mouth

Clothing on Fire.—If one's clothing is on fire one should not run wildly about, for the air currents thus produced will fan the flames and cause them to spread more rapidly. One should lie down and roll over, using rugs or blankets, a portiere, or table-cover, or any material within reach that can be wrapped about the body, in an endeavor to smother the flames.

2996 APPLICATIONS FOR BURNS

Local Application for Burns

Flimsy cotton material, especially that with a nap, should not be used, however, as it ignites readily. Drafts should be avoided, which is one reason for lying down. Rather than run to secure water, the person whose clothing is aflame should, if possible, lie down and roll to the source of the water. The flames spread rapidly upward if one is erect and catch the hair, and there is then grave danger of inhaling smoke or gas, or the flame itself. These dangers are much less when reclining. If someone else is the victim induce him to lie down, if possible, but do not hesitate to throw him down if this can be done while keeping out of range of the flames. Then roll him over and over, wrapping him in your own coat or any other material at hand. Before dropping any material over the patient place a foot on the corner near his neck. This prevents any fanning of the flames toward the patient's face and hair and at the same time prevents them from leaping out under the wrapping material, possibly to catch your own clothing. If another can bring water so much the better; but if not, get it as quickly as possible and wet the clothing to smother any fire or cinders that may be eating into the flesh of the victim, who may be unconscious.

To remove clothing, cut it away. Make no attempt to save any of it by taking it off in the usual way. If any of it sticks to the burned flesh do not pull it loose, but cut around it. Be careful not to burst any blisters. Put the patient to bed and make some application to the burned area to exclude air. It is the contact of the air with the exposed nerve-ends that causes most of the pain. Because of the destruction of part of the means of conserving heat, together with the great pain, the temperature falls below normal and shock develops. The temperature can be raised by the application of external dry heat and by hot liquids given by mouth. Remember that it is not so much the severity of a burn of any local part, but the proportion of the body surface which is affected that makes such injuries dangerous and brings on grave or fatal consequences.

Oil or some oily substance is the best local application. The parts should be covered with olive, linseed, carron or machine oil, or with unsweetened butter, cream, vaseline, petroleum, egg-white, boric acid ointment or zinc-oxide oint-

ment. Carron oil is made of equal parts of linseed oil and lime-water. In the ordinary household an excellent substance is usually on hand—bicarbonate of soda (baking-soda). Add a heaping teaspoonful of this to a pint of water to make a moist dressing to be applied directly. This is especially satisfactory for small burns and is equally useful in case of scalds. A teaspoonful of table salt to a pint of water, or a paste made of flour, will be soothing also. After covering the burn with any of these dressings put gauze or cotton over it, or apply the dressing to the latter.

In many cases of severe and extensive burns and scalds death often comes within two or three hours because of shock and pain. In severe cases the greatest relief from pain may be secured by immersing the entire body in water at the body temperature (or 95 to 100 degrees F.). If the burned areas are comparatively small, these parts alone may be immersed. A normal salt solution (a teaspoonful of table salt to each pint of water, or about two pounds to a tub of water of thirty-two gallons) is more soothing for this purpose than plain water. The patient may be placed in the bath, clothes and all, after which the clothes may be removed from the burned areas more easily. In most cases it will be necessary to suspend the patient in the water by means of a submerged hammock or a series of straps which do not come in contact with burned parts. If the burned parts are on the front of the body, however, folded blankets arranged in the bottom of the bath-tub will be sufficient. When made comfortable by one of these methods a patient may remain in the bath for days or weeks at a time, or until the burned surfaces are healed. This continuous immersion has the endorsement of the best authorities. The water, however, should be previously boiled and it should be changed twice daily.

Treatment for
Severe Burns

The *moist-heat tent* is an excellent means of treating severe burns. Blankets or some impervious material may be spread and supported above the patient in bed by any convenient means, but tucked about the neck. A table turned upside down, with pillows to lie on, is an excellent arrangement for children. A teakettle may be placed with its spout through one corner of either "tent" arrangement to provide steam, with an alcohol or other convenient heater beneath the kettle.

No wound dressing is necessary with this treatment, though gauze moistened with salt solution may be used if desired. The temperature within the "tent," as well as the water used in the immersion bath mentioned above, should be kept at about 100 degrees F.

Face Burns

Face burns should be dressed with a mask of soft material, with holes for the eyes, nostrils and mouth, some soothing ointment or oil having first been applied to its interior surface. White of egg or oil may be sipped occasionally if the inside of the mouth or throat is burned. Cooling liquids should be used, and very cold compresses or an ice-bag applied to the throat externally, to reduce the tendency of the latter to swell and contract the passage sufficiently to produce smothering.

Paraffin and ambrine, the latter being a mixture of paraffin with wax and resins, are now used extensively for burns and are found to be better than the substances mentioned above. But as they are not at hand in most cases of emergency their use cannot well be considered in connection with first-aid treatment except in industries with fully equipped first-aid quarters. After the first-aid treatment one of these may be used with benefit, as they induce more rapid healing than do the previously mentioned remedies and the scar is smoother and softer. First the burned areas are treated with mild antiseptics, then thoroughly dried, then covered with the paraffin preparation, by means of a camel-hair brush or spraying device. After a thin layer of paraffin is applied a thin layer of cotton is put on, then another layer of paraffin, then cotton and a bandage. Redressing is done every day for a while, then on alternate days.

Infected Burns

In case of infected burns any dressing in place should be removed and the discharges cleansed away with cotton sponges moistened with a saturated boric-acid solution, the part then being dried (with an electric drier or electric-light bath, if possible). Dressings are not applied again until visible signs of infection have disappeared. The electric-light bath is excellent to stimulate the skin and to prevent as well as to reduce infection, but the lamp should be far enough from the body so that treatment may continue for some time without danger of producing sunburn.

Because of the loss of body fluid through the escape of

blood-serum from the burned areas, if the burns have been even fairly extensive, there should be injections of normal salt solution or of plain water into the bowel, given slowly enough so that the water will be retained rather than act as an enema or irrigation. The sipping of water should also be encouraged.

Sunburn may be slight and produce only redness and burning, or more severe and produce blistering and general fever. In fact, sunburns may be severe and extensive enough to prove fatal; hence, one should guard against prolonged exposures until the skin has become inured to the effects of sunshine by graduated exposures. Sunburn may be prevented by covering the parts exposed with oil or an oily substance, or cold cream, vaseline or unsalted butter; but a moderate sunburn is usually desirable, as explained under *Sunlight, a Foe to Disease* (Vol. VI, Sec. 4.) The treatment given for burns will answer satisfactorily for sunburns of the same intensity, though ordinarily the degree of sunburn is slight enough so that it may be treated like any first-degree burn—with emollients or oils, such as cold cream or lanoline mixed with a little rose-water, vaseline, boric-acid ointment or baking-soda water. The simple application of cold wet cloths will be satisfactory for many cases, these to be sprinkled occasionally as they become dry and warm and changed from time to time. Carron oil is excellent for sunburn.

**Cautions
Against
Sunburn**

The element of shock in severe burning is a serious matter, usually being in proportion to the surface extent of the burn. In some cases the shock is the more serious difficulty. In this event it should receive attention first (See *Shock*). But since the warm or neutral immersion bath described above is one of the most satisfactory measures for both burns and shock, both conditions may be relieved by the same treatment. Because of the shock, however, the drinking of water should be encouraged, preferably hot water or hot lemonade, unless the inside of the throat is burned (when cold water would be required). No stimulants should be given.

Electric Shock may cause immediate death, or may merely produce temporary unconsciousness, or suspended animation. Such shock may be caused by lightning or by manufactured electricity, from a live wire. Except for the element of shock all electric burns are to be treated as other simple burns.

Electric
Shock

Shock often being the worst effect, care should be given as advised under *Shock*, on a later page. If a person is in contact with a live wire attempts should be made to break the contact while waiting for the doctor who should be called at once. In such a case contact with the victim will shock the would-be rescuer; hence, the electric switch should be thrown if possible. As this usually cannot be done promptly, the rescuer may attempt to knock the wire away with a dry stick; or it may be short-circuited by means of some metal which itself is first grounded, the metal being dropped upon the wire, never placed upon it by hand. But if the rescuer has on rubber gloves or can cover his hands with something made of rubber so much the better; or if he has on rubber boots or overshoes, the victim's body may be removed directly without shock to the rescuer. Especially if the wire is first grounded, one will be safe in removing the victim by means of his clothes, provided they are dry and one is standing on dry wood or cement or other poor conductor of electricity.

Artificial respiration should be instituted at once upon freeing the victim, the Schaefer method being preferred. Give him plenty of air, loosen all tight clothing, and apply external heat to the body, with friction of the extremities toward the heart. As soon as breathing begins by gasps, the ammonia bottle or sponge, or smelling-salts, may be passed before the nostrils, but repeat or continue the artificial breathing as long as may be necessary.

Powder
Burns

Powder Burns may be not only very painful but more or less disfiguring. Sometimes grains of powder become imbedded in the skin, where they may remain to give a bluish, spotted appearance. So far as the burns themselves are concerned, they may also be disfiguring; but in treatment they require no other measures than are used for ordinary burns. Freezing, however, has been advocated by some physicians, some cases so treated terminating satisfactorily. Hydrogen peroxide is excellent for the treatment of such wounds. Its use is free from danger and causes no added pain. After extracting all the powder grains possible, it may be applied alone to the wound. A better preparation is one part glycerine and three parts hydrogen peroxide. This may be applied by compresses bound to the affected part. Within two or three

days, if the treatment is made continuous, not only will the stain be removed but, in the majority of cases, all particles of the powder. (See also *Acid Burns* and *Alkali Burns*.)

BROKEN BONES. — See *Fractures*.

CARRYING A PATIENT.—

When at all possible, first aid should be rendered to a person injured or unconscious before removal. When necessary to remove immediately, or after first-aid treatment, the method will depend largely upon whether there be one or more assistants and what means are at hand, as well as upon the condition of the patient. Often it will be necessary for one person to carry a patient. This may be done in one of several ways, such as by giving shoulder assistance, carrying the patient

in the arms, across the shoulders or across the back. But unless the patient is comparatively light and the carrier strong, it is difficult to carry a totally unconscious person without assistance. Before a patient can be carried by any method it is usually necessary to straddle him as he lies face down, just back of his shoulders and facing his head. Grasp him beneath his armpits and lift him to his knees, then grasp around the lower chest and bring him to his feet. Shift your position now to the patient's left side, thrusting the left knee in front of his knees to prevent their collapse. Having carried out these preliminaries, any one of the following three methods may be continued from this point:



**The Erect
Carrying
Position**

A helpless person may be supported in this position preparatory to being lifted and carried by means of the "Fire-man's Lift."

The Carry-
in-Arms
Position

The *Erect Carriage* is accomplished by passing the patient's left arm, held by the wrist in your left hand, over the shoulders and holding it tightly against the left chest, your right arm going around his waist. The *Carry-in-Arms* position is secured by dropping the patient's wrist, your left arm going under his knees—the patient sitting lightly on your right knee momentarily—and your right arm going around his back. By rolling the patient into the hollows of your elbows while rising the weight is made less burdensome. The *Pickaback* position is obtained by stepping to the front of the patient, your back to him, holding his left wrist with your left hand, leaning forward so his weight will be on your back, then stooping and placing an arm about each of his thighs and giving a little hunch to elevate his body on your back.



As a preliminary to the "Fireman's Lift" the back is bent so that both shoulders, with one shoulder under the crotch, are placed well under the person to be carried. One of the wrists of person to be carried is then grasped firmly before arising to standing position.

His arms are now crossed over your chest and his wrists held with your opposite hands. In this position the patient's arms take some of the weight off your own arms.

The Fireman's Lift, or *Across-the-Back Carriage*, may be called a perfect hold for carriage by a single person, for it may be used with one arm and hand free for any necessary climbing. After securing the erect position, by the method given above, turn and partially face the patient, grasp his right wrist with your left hand

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and bring his arm down to your left chest, over your head. Now stoop and, passing your right arm between his thighs, encircle the right thigh, grasp the right wrist, letting go with the left hand which now takes his left wrist, this wrist being held against your left side as you come to the erect position. If desired or necessary, however, the left hand may release the patient's left wrist, to use it in climbing or otherwise. These positions must be reversed when lowering a patient, unless there are others near to assist.

Two persons may carry a patient easily, in one of several ways. If the patient is conscious the *two-handed-seat* carriage may be used. In this one person is on each side of the patient

and each passes one hand under the patient's back, lifting him to the sitting position, and the other hand beneath the patient's knees, the hands opposite each other to be finger-locked. The patient passes an arm about each carrier's neck. After rising together the bearers walk by advancing alternate legs. Or the patient may be carried *by extremities*, one carrier standing at his

The Two-
Handed Seat



Here is shown a helpless person being carried by "Fireman's Lift" across the shoulders of the man who bears him. One hand is used to grasp the wrist of the person carried while the unoccupied hand is free for further use.

head facing his feet, and lifting with his hands beneath the shoulders; the other standing between the patient's knees and passing a hand beneath each knee from the outside. This method cannot be employed in severe injuries to the thighs or the chest.

Again two bearers may grasp each other's wrists, overhand, making a seat for the patient, who places an arm about each bearer's neck. Or one bearer may use both hands and the other but one, locking wrists as above, the second bearer placing his free hand upon the opposite shoulder of the first bearer to make a back support for the patient, who, however, should hold one or both bearers with his arms.

Three persons may easily carry a patient face up, by placing themselves on the same side and putting their arms beneath him, palms up, one at the chest, supporting the back and head, one at the feet and one between with his arms beneath the small of the back and upper thighs.

Stretchers, or *litters*, may be made from a loose door, a shutter, or a broad plank; or pillow-cases or sacks may be used for the body of the litter, with holes cut at the corners through which to pass tent-poles, oars, fork-handles, sapplings, guns, crutches, or any other suitable articles of sufficient length. A coat and vest may be used, one for each end of the litter, both to be buttoned and the sleeves of the coat turned in, the litter-poles going through the garments at the armholes. Blankets and sheets may be used by rolling opposite ends over sapplings, guns or other supports that will not be smooth enough to let the cover unroll from the weight of the patient. A satisfactory means of carrying a patient is an ordinary straight-backed chair, one bearer holding the lower end of the front chair-legs, the other holding the top of the back.

The Use of
Stretchers

In carrying a loaded litter, two men may be employed, each between the ends of the litter-handles. If there are three, two should carry the head end, one on each side carrying with one hand; the third man should stand between the handles at the feet, with a shoulder-strap if desired. Four men should carry a loaded litter when possible, one at each end of each handle, on the outside, of course, carrying with one hand. The feet are carried first except when going up a stair or a hill, when the head should go first. Except when going up or

down stairs the arms carrying the litter should be straight. On the stairs the lower end is raised to level the litter.

CARTILAGE, SLIPPED.—See *Knee-cartilage Dislocation*.

CATALEPSY.—This curious little-understood condition is characterized by insensibility, fixed and rigid muscles and staring eyes, the extremities and body tending to remain in the position they were in before the seizure, or, after slow response to bending efforts, to remain in the new positions, sometimes for long periods, though some attacks are of short duration. There may be every appearance of death, but the close observer will perceive shallow breathing and feeble pulse. Nothing can be done but to put the patient in a safe place and call the doctor. (See *Catalepsy* in Section 7.)

Symptoms of
Catalepsy



An ordinary chair may be used as a stretcher or litter to carry an unconscious or helpless patient when nothing better is at hand.

CHEST WOUNDS.—See *Wounds*.

CHILLS.—See *Disease, Sudden Attacks of*.

Choking

CHOKING.—Choking usually results from lodgment of some foreign body in the throat. It calls for immediate attention. Such accidents are common and a fairly frequent cause of death. Choking by food is most likely to occur in epileptics who take fits during meals, or in intoxication, though laughter often causes one to breathe food into the windpipe. Other conditions also bring on choking at times. Besides masses of food, fish-bones, false teeth, marbles and wooden beads, collar-buttons, coins, small nails, pins and various other small objects may become lodged in the throat. Often the coughing caused by the irritation is insufficient to dislodge the foreign body, in which case the expulsive effect of the cough may be increased by slapping vigorously with the palm of the hand between the shoulders in time with the coughs. This is much more effective if the head of the patient is held downward. When a child is the sufferer, grasp him by the feet and hold him with head down while slapping the back. An adult may throw himself over the seat of a chair, his stomach upon its edge, with head and shoulders hanging down.

Dislodging
Objects in
Throat

If such efforts do not produce the desired results, it may be possible to remove the foreign body with the finger, another person being better able to do this than the victim himself. A convenient implement should be inserted between the teeth before attempting this. If the finger does not dislodge the body it may produce vomiting by tickling the fauces or the pharynx and the vomiting may dislodge it. Sometimes the obstruction may be seen and removed with some blunt object, or with tweezers or forceps if such are at hand. Occasionally a food mass may be forced on down with the finger, but if it is lodged in the windpipe this will cause further trouble. If it can be reached by the finger, however, it is not likely to be far enough down to have reached the windpipe.

In most cases, if the breathing is not seriously interfered with, nothing should be done until the doctor arrives. When calling, the doctor should be informed of the nature of the trouble, as he may need special instruments which he would not ordinarily bring with him.

A few drops of some liquid, or some small pieces of food,

in the larynx or the windpipe often cause severe paroxysms of coughing. In such cases there is no danger of choking to death, but the patient will exhaust his breath because it is difficult or impossible for him to inhale. A slap on the back at the time of a cough may expel the substance. After it has been dislodged the irritation will soon subside.

Often some foreign body passes on, but scratches or otherwise injures the throat, producing a feeling that the object is still there. This feeling will pass away in a few hours. (See also *Strangulation*.)

CHOLERA INFANTUM and CHOLERA MORBUS.—See *Colic*.

CLOTHING AFIRE.—See under *Burns and Scalds*.

CLOTHING, REMOVAL AFTER INJURY.—If it is necessary to remove clothing after injury, it should be done with due regard for modesty and with as little exposure to cold as possible. Garments should be removed from the uninjured side first, then from the injured one. Often they will have to be cut or ripped. In putting the clothing back, the injured side should be dressed first. If any parts are mangled or crushed, as by machinery, the clothing should be cut around the wound. (See also under *Burns*.)

The Removal
of Clothing

COLIC.—There are numerous causes of colic, which is a violent griping abdominal pain. Common causes are indigestible or undigested food, spoiled or tainted food, ice-water, ice-cream in excess, appendicitis, gallstones, kidney-stones and other conditions. (See *Colic*, Section 7.) Vomiting and shock are often associated with the pain. If the vomiting and purging are severe the condition is probably cholera morbus or, in children, cholera infantum. The doctor should be called if simple remedies do not relieve the trouble within a short time. External heat, applied by means of hot-water bottle, electric pad, hot plates, or bricks, is usually an excellent remedy. Enemas are valuable. Vomiting will usually aid in giving relief. This may be induced by any simple emetic (See *Emetics*) or by plain warm water and tickling the throat.

COLLAR-BONE FRACTURE.—See *Fractures*.

COMA.—A coma is a deep unconsciousness from which one cannot be aroused. It may result from an ingested poison, a poison formed in the body (as in uremia and diabetes), injury, brain disease (as apoplexy) or hysteria. It is inadvis-

able to attempt treatment of these cases unless the cause is known. Merely send for the doctor and see that the patient is protected, loosening all constricting clothing. (See *Coma*, Section 7.)

COMPRESSION OF THE BRAIN.—See *Brain, Compression of*.

CONCUSSION OF THE BRAIN.—See *Brain, Concussion of*.

Bruises and
Bumps

CONTUSIONS.—Contusions are usually called bruises and bumps. They are among the commonest of all accidents, particularly in the case of children. They are caused by falls, squeezes, pushes and blows from blunt objects. Hence the skin is not broken, though there is rupture of internal blood-vessels, sometimes severe. The discoloration is due to the escape of blood from these ruptured vessels and the changing colors (purplish and various yellows and greens) are due to the change in the blood before it undergoes absorption. Because of this internal bleeding there is often considerable swelling, which comes on quickly. "Black-eye" and bruises of the nails of fingers and toes are familiar forms of contusions which respond to the treatment here given.

Cold in some form should be applied, by wet cloths and so forth, or by cold witch-hazel or alcohol. If a suitable piece of ice is available, an excellent treatment may be given by pressing it against the contusion over a wet towel. After the usual severe pain has subsided hot cloths may be used. Half an hour will usually be long enough for the cold cloths, but the use of the hot cloths (or of some such heating medium as a hot-water bottle or a hot brick) may continue for one or more hours.

Immediate pressure to the injured part will prevent swelling, partly or entirely, as it stops the internal bleeding. The pressure may be made by means of some convex surface held firmly against the part, or by a thick pad of cotton, gauze or other soft material bound firmly in place with a bandage. The bowl of a spoon or a soup-ladle, a baseball or other convex object, according to size of wound, may be used, with or without padding. A tourniquet may be used if bleeding does not stop with the simple pressure (See *Tourniquet* under *Hemorrhage*). There may be shock with a severe contusion (See *Shock*, for treatment).

It should not be forgotten that when there are severe

bruises about the trunk there may be some internal injury. If there is such a contusion, with evidence of internal trouble or shock, send for the doctor, keeping the patient flat and applying external heat. Give no internal stimulant, lest there be abdominal injury.

CONVULSIONS.—Convulsions are often feigned, especially in hysteria; but usually they are real. They may be due in adults to kidney disease, epilepsy and nervous disease, while in childhood and infancy there are many causes. Infancy is the period during which they are most likely to occur, rickets being a prominent cause, also teething and brain disease. Indigestion, worms, foreign bodies in the nose or the ear and the onset of some acute fever disease, such as scarlet fever, are the leading causes and are especially likely to cause convulsions in nervous children.

The application of cold cloths to the head or to the heart, with heat to the extremities and the stomach, is the best initial treatment for convulsions in the adult or the child over seven. The most convenient means of treatment by the above method is placing the feet in a hot bath with a hot-water bottle to the abdomen and the cold compress to the head, the patient being on a couch with the feet hanging over the end or side and with the head slightly raised. But if a tub of hot water can be drawn quickly (105 degrees F. or higher for an older child or adult, but not higher for a young child), this is a better means of calming the patient, who is put into the bath with an ice-bag to the head and ice-cold compresses to the back of the neck. Upon removal from the tub bath a tepid or slightly cool sponge bath and friction should be given, the cold applications to the head and neck continuing until the patient is entirely normal. As soon as possible a hot enema (115 degrees F.) should be given, also hot water to drink.

**Treatment
for Convul-
sions**

In infancy an excellent treatment is the hot bath (100 degrees to 102 degrees F.) three to five minutes, with cold (not ice-cold) compresses to the head. This is followed by pouring a quart or two of cold water over the head and down the spine, after which the child is immediately wrapped in warm blankets to bring about quick reaction. Often the warm bath alone (for one or two minutes) will be sufficient, but a cool, quick sponge should be given, with wrapping in warm dry

blankets following. The hot-blanket pack may be used if the immersion bath is inconvenient. A fairly large, hot bulb enema will aid in most cases. Also vomiting should be induced by tickling the throat. If mustard is at hand a teaspoonful may be added to the four or five gallons of hot water necessary for the child's immersion, or in this proportion if more water is necessary on account of the size of the tub. If necessary, any bath procedure used may be repeated.

Convulsions
of Bright's
Disease

Convulsions occurring in Bright's (kidney) disease, due to uremia, demand prompt measures for bringing about increased skin activity. The convulsions are usually preceded by a disagreeable breath odor and there has usually been, for a longer or shorter period of time, a pale and waxy skin, with swollen ankles and feet and puffy eyelids. The convulsions range from mere twitchings to severe jerking of the entire body, with unconsciousness and delirium in all cases except the most mild. If enough people are on hand to place the patient in a hot tub bath this should be done, the bath to continue for fifteen to thirty minutes, or even longer, as required. Warm blankets should be ready to wrap about the patient upon removal from the bath.

Often this treatment cannot be given. In this case apply about the body (with all constrictions removed) hot-water bottles or other heat, sufficient to induce sweating if possible, with cold cloths to the head. Give hot water to drink and, as soon as possible, a copious enema. If the condition remains serious in spite of either of the above treatments, apply alternate hot and cold compresses to the spine and heat to the feet and over the heart. In all cases keep the patient from injuring himself. (See *Epilepsy* and *Hysteria*; also these headings and *Convulsions*, in Section 7.

CROUP.—A decidedly warm or fairly hot compress should be placed to the upper chest and over the neck, or, better, wrap the child in a hot blanket, with hot-water bottles to keep it warm (but avoid using too much heat). Place the child comfortably under the moist heat tent already described under *Burns and Scalds*. Someone may have to be under the tent with the child. Provoke vomiting with the finger in the throat. Great relief within an extremely short time often results from giving kerosene ("coal oil") in doses of five to ten drops, or

even up to half a teaspoonful, preferably direct from the spoon, but soaked in a lump or domino of sugar if necessary. Keep the child in a warm room, but have ample ventilation.

CUTS.—See *Wounds*.

DELIRIUM TREMENS.—See *Alcoholism*, Section 7.

DISEASE, SUDDEN ATTACKS OF.—Often acute illness comes on so suddenly, “out of a clear sky,” that the patient and all concerned are too confused to “think straight” or attempt to learn the exact nature of the trouble. The treatment of all common diseases is given elsewhere; but here will be given treatment of value in these sudden attacks. These measures, which should be taken as quickly as possible, even though professional help may be summoned, will often do much to mitigate the severity of an attack, whether due to a contagious or a non-contagious cause. They may actually save life.

Sudden
Attacks
of Disease

If not already in bed, put the patient there immediately. Regardless of how long it may have been since the last meal, withhold all food. An enema should be given, repeated if necessary for good eliminative results, using plain water at a temperature of 95 to 98 degrees unless there is high fever, in which case use cool or cold water. If there is bladder irritation or retention of urine, use hot enemas (115 degrees). To relieve nausea and any tendency to vomit, induce vomiting by giving two or three glasses of plain warm water or one glass of warm water with a teaspoonful of salt or mustard in it. No water should be given after this if nausea persists; but if there is no nausea considerable water should be taken—hot in case of chill, cold in case of fever; otherwise according to preference, but never iced.

Hot applications over the seat of any pain, by means of heating lamps, hot-water bottles, fomentations, or the most convenient and effective means available, will generally be beneficial; but in some cases cold applications will be more agreeable to the patient, and such preferences will sometimes govern the selection of heat or cold. Often alternate hot and cold applications will be better than either alone. In these cases begin with the heat and terminate with the cold, regardless of how many alternations may be necessary. As a rule, however, it may be said that heat will be more soothing and agreeable than cold, though appendicitis (which may not be

Hot and
Cold Appli-
cations

diagnosed at first) will usually be shortened in duration by cold.

Skin activity should be encouraged in practically all of these acute disorders. Any convenient general hot application may be selected; but the steam or vapor bath, given under raised covers over the patient in bed, is usually effective. (See *moist-heat tent*, under *Burns and Scalds*.) The wet-sheet pack, however, is one of the most effective of all hydrotherapeutic applications. (See *Water and Health*, Vol. VI, Sec. 2.) But if the patient is weak, with poor recuperative power, and especially if suffering from chills, the hot-blanket pack will usually be better, as it often is also for children who have a dread of cold applications, such as the initial application of the wet-sheet pack.

On the other hand, if there is considerable fever the cold wet-sheet, renewed every half-hour, or occasionally cooled by sponging or sprinkling with cold water, will often be better, in which case a cold turban should be applied also to the head. As sweating is excellent to reduce temperature, one of the sweating procedures should also be used if the patient is not nervous or of the nervous type, the treatment terminating with a cool or a cold application with only moderate friction (none if there is fever) and a warm bed in a well-ventilated but not drafty room.

The above measures should help restore normal circulation and aid in the correction of such local circulatory disturbances as cold extremities and hot head and face. Often the hot foot-bath, in a vessel deep enough for the immersion of the ankles and the calves as well as the feet, while the rest of the body is wrapped well in blankets, will be effective, especially if the patient drinks hot water freely, or hot weak lemonade without sugar. If the patient is unable to sit up this treatment may be given while he reclines with the feet over the end or the side of a couch. Cold applications to head and face while heat is applied to the feet will balance circulation when the upper part of the body is hot and the lower part cold.

One should avoid over-treating in any acute disorder. Rest, warmth, absence of food and aid in elimination are the four essentials. All other treatment, even the shifting of

Baths and
Packs in
Acute
Diseases

Eating
During Acute
Disease

circulation by the methods given in the preceding paragraph, is only for the more or less temporary relief. Unless the patient is of moderately vigorous constitution and the illness comparatively slight, there may be more exhaustion of energy from over-treatment than is favorable to recovery.

If begun immediately upon the first sign of trouble the measures suggested will often abort a serious illness. Many times the diagnosis of a doctor called upon the first appearance of disturbance is doubted, even by the doctor himself, when these measures are employed. Intelligent nurses who have instituted such treatment without the doctor's advice have caused the family of the patient to insist that the diagnosis (of some disease usually lasting several days) could not have been correct. This is especially true in the case of some acute fever disease. However, this treatment is given not to supplant the doctor, but for use when the doctor is not available, or before he arrives, though often it makes his services unnecessary.

Diagnosing
Acute
Diseases

DISINFECTION.—See *Nursing*, Sec. 3.

DISLOCATIONS.—Send for the doctor, either medical or osteopathic. An inexperienced person may easily do far more harm than good in endeavoring to readjust the parts. Usually dislocations, though painful, may be left without reduction for several hours without serious harm resulting. The patient should be made as comfortable as possible, with pillows or other fairly soft support placed under and about the limb as he himself may direct—if he is sufficiently mature to give such directions—since in most dislocations there will be one position which will give greater comfort than any other. After it is made comfortable and the strain removed, hot cloths, kept hot, should be laid over the part. Then the doctor's arrival should be awaited. Some dislocations may respond to a straight pull. A finger or elbow can sometimes be pulled into place in this way. Even the shoulder may respond to such treatment. If the doctor's arrival is certain to be delayed for a good many hours, it may be best for someone to attempt this treatment.

DISLOCATION OF THE LOWER JAW.—The attendant should wrap his thumbs well in a handkerchief, then while facing the patient place the thumbs in the mouth on the lower back teeth,

Dislocation
of the Jaw

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the fingers of both hands grasping below the chin. Now, while pressing down and back with the thumbs, let him pull up with the fingers. If the jaw goes into place it will do so with a snap. Then the attendant should slide his thumbs off the teeth into the cheeks. A tailed bandage should then be applied. (See *Bandaging*.)

First Aid in
Drowning

DROWNING.—Send for the doctor unless there is a qualified life-saver at hand, in which case call him. Loosen all tight clothing, ripping off if necessary. Turn the patient face down. Since the air-passages and the stomach are filled with water, which causes the cessation of breathing and circulation, it is necessary to clear them. Place the hands one on each side of the abdomen and lift the patient so that the head hangs low, allowing the water to escape, or the patient may be rolled over a barrel. Wipe out the mouth and the nostrils, then pull the tongue out with a handkerchief and tie it with the handkerchief going about the chin. An attendant should start friction to dry and warm the body, while respiration is being restored. See the *Schaefer Method* under *Artificial Respiration*, this being the preferred method.

The sooner the patient can be placed under warm coverings the better, so long as respiration is not interfered with. Then apply external heat. A hot salt solution may be injected into the bowels, using two teaspoonfuls of salt to a quart of water. If there is water or froth in the throat and nostrils wipe it away occasionally. Continue artificial respiration until the patient has recovered or proves to be dead. Often life may be restored even after two hours of almost hopeless work toward resuscitation. Even though the patient may have begun to breathe regularly, in which case artificial methods may cease, one should be ready to begin again immediately upon the first suspension or halt in normal breathing. Cold water in small amounts poured or dropped upon the chest will stimulate natural breathing once it has begun, or smelling-salts may be used.

EAR, BLEEDING FROM.—See *Skull Fractures*, under *Fractures*.

EAR, FOREIGN BODY IN.—Small children often put in the ear small objects, such as shoe-buttons, peas, beans, beads, corn and similar objects. Adults not infrequently get insects

in their ears, causing discomfort by their movements and their contact with the ear-drum. Inanimate objects cause little if any discomfort, though the hearing may be impaired by them. A bright light held to the ear may bring an insect out, but it is usually better to flush it out or kill it with warm salt water or warm oil. If it is killed without being removed, it becomes an inanimate object and, as with other such objects, should be left for expert hands to remove, for an inexperienced person may do irreparable damage to the ear-drum. Pointed instruments never should be used in the ear. Occasionally impacted wax interferes with hearing and may be bothersome. It may be removed by repeated washing with warm water or warm oil, the head being inclined to the affected side.

Removing
Foreign Body
From Ear

EAR-ACHE.—Place a hot-water bottle or hot sand-bags to the ear, especially to the mastoid eminence back of the ear. There is no better remedy, in addition to this, than a couple of drops of laudanum on a tuft of cotton. This should be applied, preferably, after dropping into the ear a drop or two of warm oil.

ELECTRIC SHOCK.—See under *Burns and Scalds*; also *Shock*.

EMETICS.—One of the best emetics that always is at hand is the tickling of the throat with the finger, a feather, or some article such as a spoon. A glass of plain warm water, or, preferably, two or three glasses, will often be serviceable; but a teaspoonful of salt or mustard flour added to a glass of warm water is often more effective. Ipecac is a favorite emetic, being both effective and safe. The dose for small children is a teaspoonful, for adults a tablespoonful. Any of these emetics may be repeated within ten minutes if needed.

Emetics

EPILEPSY.—This affliction is taken up in *Forms of Disease and Their Treatment*. (Vol. VIII.) The First Aid student should know what to do, in case of an epileptic seizure, without having to look it up; hence such treatment is given here. The distinguishing features of an epileptic “fit” are unconsciousness with convulsions, grinding of the teeth and biting of the lips or the tongue, foam or froth at the mouth, usually but not always bloody. The patient should be prevented from injuring himself, which may be done by restraining him gently,



The eyelid may be everted or turned back by a suitable object, as here illustrated.

giving way to some extent to his movements. A well-padded piece of wood, or some other comparatively soft object (wadded handkerchief, a cork, or an eraser) should be placed between the teeth, with a string attached as a precaution against swallowing.

This will pre-

vent biting of the tongue, which otherwise might be so severe as to make eating difficult for days. All constricting clothing should be loosened. Then let the patient alone to sleep, which he will do. Moderate external heat may be given if apparently necessary. After the sleep give water.

Acids in
the Eye

EYE, ACIDS AND ALKALIES IN.—When the eye gets any of these (or ether or chloroform) in it flush it with large amounts of water by the gentle pouring method or an eye-cup, or dipping the face in a basin of water and opening the eye after immersion. Oil, vaseline or milk may be used in the eye, according to convenience.

Foreign
Objects
in the Eye

EYE, FOREIGN BODY IN.—The irritation due to a foreign body in the eye causes tight closing of the eyelids and a copious flow of tears under them. This fluid will often dislodge the object and carry it to the inner corner of the eye whence it will be washed upon opening the eyelids. Never rub an eye with "something in it." The admonition to "rub the other eye" is of value, since it spares the affected eye, even though having little influence toward removing the offending object. Rubbing the other eye, however, may increase the tear flow in the affected eye sympathetically. A simple method of

loosening a body from the upper lid (where most foreign bodies lodge) is to pull the lid from the eyeball by drawing upon the lashes, then pulling it down over the lower lid and releasing it so the lower lashes will sweep the under side of the upper lid. An object on the lower lid can usually be easily seen by pulling the lid from the eyeball with the lashes. It can be easily removed with a point of a handkerchief, a camel-hair brush, cotton-covered toothpick or coiled tuft of cotton.

To release a somewhat firmly adherent body from the upper eyelid the lid should be turned back, which may be done by pulling it downward by the lashes, then turning it up and back over a toothpick or a match-stick, knitting-needle, hair-pin or a pencil placed upon the lid toward the top of the eyeball—above the upper edge of the cartilage in the lid. The foreign body can usually be seen readily when the under side of the lid is exposed. Then it may be easily removed with a handkerchief corner or other suitable object. Sometimes a disturbing body is so small that a magnifying glass is necessary to make it visible.

Turning the
Upper Eyelid

An object already dislodged may have left such irritation as to seem still to be present. A drop of olive oil or sweet oil in the eye will usually ease the irritation, though occasionally, especially in a nervous person, it may be best to instil a drop of one-per-cent solution of cocaine into the eye. Usually after removing an object the irritation may be sufficiently reduced by bathing the eye with a warm or a cool salt solution. When the eye is greatly irritated a cool solution should be used. The best way to put the solution or the oil into the eye is to drop it at the inner corner with the lids closed, while the head is held back, then have the patient open the eye so the fluid will flow over the eyeball.

When particles of stone, emery, flint, metal or similar hard substances become embedded in the eye, especially in the eyeball, a competent surgeon or a physician should be called to remove it, else considerable or even irreparable damage may be done, either by the object or by bungling attempts to remove it.

FACE BURNS.—See under *Burns and Scalds*.

FAINTING, OR SYNCOPE.—This is a condition of partial or complete unconsciousness due to a fall in the blood-pressure

or a depression in the heart's action, resulting in anemia of the brain. Numerous conditions may cause it. The chief symptoms are a cold skin, a sudden pallor, with loss of power over the limbs. All the muscles become fully relaxed, the face placid, breathing quiet and shallow and the pulse almost imperceptible. These symptoms usually last but a short time.

Often a person may be kept from fainting by being removed to fresh air, by lying down, or by drinking cold water. In case of a faint never lift the head or the body. It is often immediately effective to lower the head of bed or couch on which the patient reclines. In addition to keeping the patient's head low, loosen all tight clothing (including shoes, gloves, and corset if worn) and dash a little cold water on the face; also, if convenient, once or twice upon the upper chest. Smelling-salts may be passed before the nostrils with good effect. The fumes of burnt feathers are also effective. Slapping the chest, especially in the region of the heart, will help greatly, while in a stubborn or apparently serious case hot applications should be made over the heart. The recumbent posture should be maintained until the circulation is again normal. (See also *Unconsciousness*.)

FIRE, SMOTHERING OF.—See under *Burns and Scalds* for proper method of smothering fire of clothing, on oneself or another.

How to
Remove Fish-
Hook

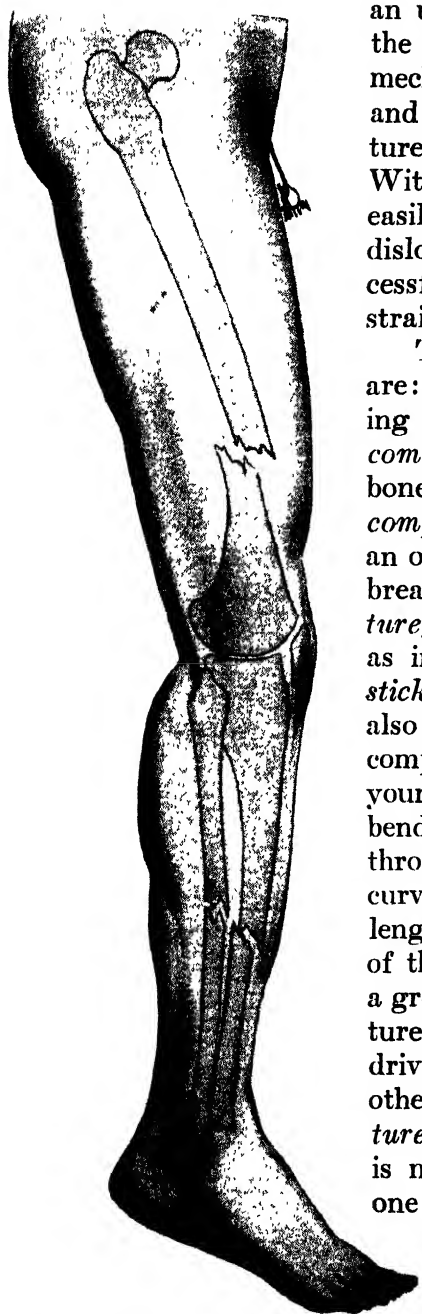
FISH-HOOKS, REMOVAL OF.—Because of the barb on fish-hooks, these usually remain in a wound or, if pulled backward, produce a rather severe laceration. If the hook is near an artery, a serious wound of the artery may be caused by this method. A better way of removing the hook is to force it on until the point and the barb protrude, then file or clip off the barb, after which the shaft may be pulled backward through its own wound.

FITS.—See *Epilepsy*; also *Unconsciousness*.

FLAMES, SMOTHERING OF.—See under *Burns and Scalds*.

FOREIGN BODIES.—See *Ear, Foreign Body in*; *Eye, Foreign Body in*; *Nose, Foreign Body in*; *Stomach, Foreign Body in*; *Throat, Foreign Body in*; *Wound, Foreign Body in*.

FRACTURES.—The reader is referred to Volume I for a review of bony anatomy, which will make the study of fractures (broken bones) more interesting and comprehensive. With



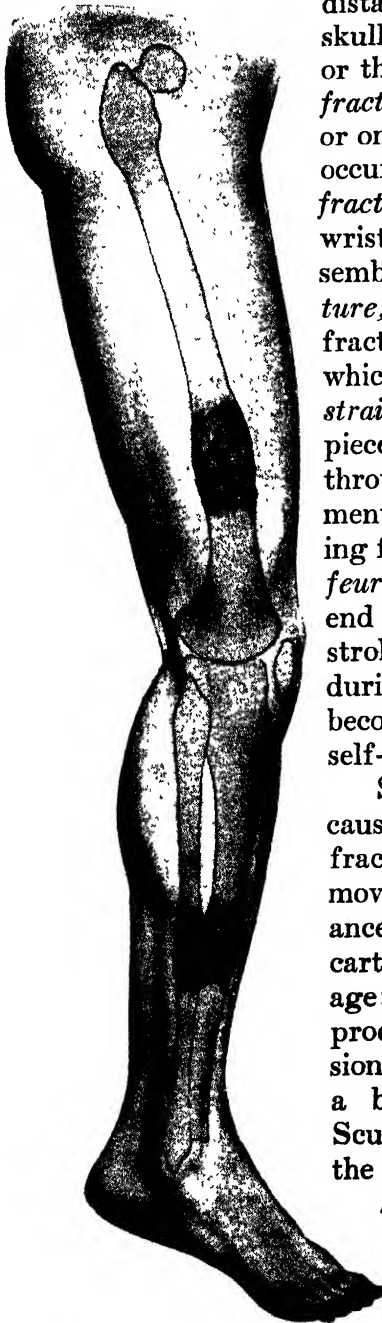
an understanding of the nature of the bones and the structure and mechanism of the joints, sprains and strains, dislocations and fractures will be easy to understand. With such knowledge many people easily get the "knack" of reducing dislocations and fractures and successfully treating sprains and strains.

The various kinds of fractures are: *articular fracture*, one involving the joint surface of a bone; *comminuted fracture*, in which the bone is broken in several pieces; *compound fracture*, where there is an open wound leading down to the break in the bone; *depressed fracture*, where the fragment is sunken, as in some skull fractures; *greenstick fracture* (sometimes called also hickory-stick fracture), an incomplete fracture occurring only in young people, in which the bone bends and then breaks partly through on the convex side of the curve only, usually also with a lengthwise break at the inner end of the transverse fracture, as when a green stick breaks; *impacted fracture*, one in which one fragment is driven into the spongy tissue of the other fragment; *incomplete fracture*, in which the line of fracture is not complete; *indirect fracture*, one occurring at a point at some

Incomplete
Fracture

The illustration shows typical simple oblique fractures of large bones of the leg. The femur is fractured in the lower third of the shaft. The tibia and fibula also are fractured in the middle of their shafts.

Fractures,
Various
Kinds



distance from the seat of injury, as a skull fracture from a fall on the feet or the lower end of the spine; *multiple fracture*, involving either several bones or one bone in several places, all breaks occurring at the same time; *silver-fork fracture* (Colles's fracture) affects the wrist, the deformity produced resembling a fork in profile; *simple fracture*, an uncomplicated, not compound fracture; *spontaneous fracture*, one which occurs without external injury; *strain* (sprain) *fracture*, in which a piece of bone is broken or torn off through strain upon a tendon or a ligament; and *torsion fracture*, one resulting from twisting. There also is *chauffeur's fracture*, a break of the lower end of the radius caused by the back-stroke of an automobile crank-handle during back-fire. This fracture has become rare since the introduction of self-starters.

Sudden muscular contraction may cause fracture, as, for example, the fracture of the knee-cap in the quick movement and strain of catching balance after slipping. The bones and cartilages become more brittle in old age; hence fractures are more easily produced at this time of life. Occasionally an aged person may fracture a bone merely by turning in bed. Scurvy and some other diseases make the bones more prone to fracture.

Symptoms. Usually a crack or a snap is heard or felt by the victim at the time of injury. Pain at the

This further illustration of fractures of the femur, tibia and the fibula shows these bones of the leg after they have knitted together and healing has ensued.

point of injury, at first dull, later in sharp stabs with any motion which causes movement of the fragments. Grating (called "crepitus") is felt by a hand placed over the injury when the fragments are moved. It may also be heard. This movement causes pain. It is absent in impacted fractures and in case anything (muscle or blood-clot, for instance) separates the parts of the fractured bone. Abnormal mobility sometimes is present; that is, the limb may be bent where there is no joint, but it is unwise to attempt to elicit this symptom. There usually is some form of deformity, such as angulation, thickening, overlapping of bones, with shortening of a limb, or limitation of rotation in a joint. Shortening is due to muscular contraction, especially pronounced in fractures of the arm or the thigh. If only one bone of the forearm or the leg (below the knee) is broken, the other bone prevents shortening. The x-ray is the present mode of examining a fracture if there is any doubt as to its character, also of determining the perfection of the setting and the union of the fractured ends. A dislocation may be distinguished from a fracture by the following findings: Dislocations occur at joints, while fractures are usually along the shaft (of long bones); decreased movement; when put in proper position (set) the parts remain in position; the displaced rounded bone-end is easily felt; absence of crepitus. See *Dislocations*.

**How to
Detect a
Fracture**

Fractures require expert attention. They must be handled gently. Rapid movement, unless skilled, must be avoided. Usually it is best to make the patient comfortable and await the arrival of the doctor, but in many cases the location of the fracture permits the patient to go to the doctor. A case of fracture unwisely handled may be converted from a simple fracture into a compound fracture, with the possibility of serious consequences. If it will be some time before a doctor can arrive and if the patient must be moved, this can often be done safely if sufficient care is taken. By pulling upon the injured member in line with the broken bone the contraction of the muscles is to some extent overcome, thus allowing the ends of the bone to come more nearly into normal position. The part may then be supported on a soft pillow or folded garments, provided sagging at the break is prevented, and especially if gentle traction is kept upon the limb.

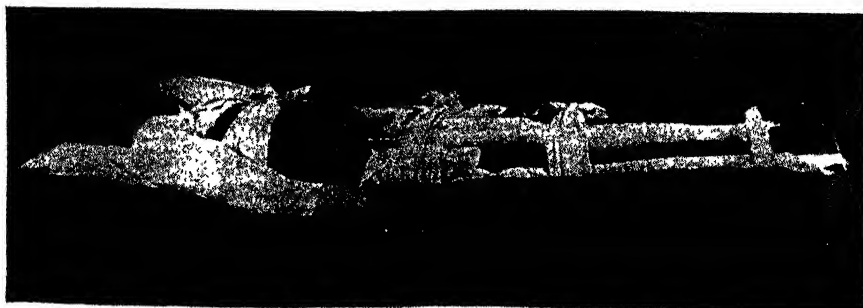
3022 SPLINTS—SKULL FRACTURES

Before the patient is moved the bone-ends should usually be made as nearly immovable as possible. This is done by applying *splints*, which consist of any rigid material fitted about the break. A shingle or other similar piece of wood, a ruler, pieces of metal or heavy cardboard, all suitably padded, may answer. If a doctor's services cannot be secured, then the fracture should be set to the best of one's ability, according to the nature of the break. But compound fractures especially should be left for the doctor, unless it is absolutely impossible to get a doctor for hours.

Splints and bandages are necessary in most cases to keep the injured part at rest and to keep the parts in the best position so healing will take place more quickly and properly than without them. This requires from three to eight weeks, depending upon the bone broken and upon the physical condition. In some cases absolute rigidity must be maintained until perfect healing has taken place, while in others massage and passive movements may begin early. In case of fractures of joints or near joints, especially, massage and passive movements should be given as soon as it is safe to do so, to prevent marked stiffness after the fracture has healed. Passive movements are merely movements made by an attendant, to involve the joint or joints near the fracture.

Skull Fractures

Skull fractures should always be considered as serious injuries. Even if a patient with a skull injury should feel like walking to the doctor's he should not be allowed to do so. He may collapse suddenly at any time. The vault or base of the skull is often fractured without any wounding of the scalp.



Splint improvised from a broom. This long splint is used principally in fractures of the thigh bone or other severe injury to the thigh to produce complete immobilisation of the entire limb.

Because of the proximity of the brain this part is often damaged in skull fractures, either by depressed fragments of bone, splinters or compression, the symptoms of such injury being, in some cases, delayed. In many cases there is bleeding from mouth, nose or ears, or from all of these.

Lay the patient in a comfortable position with the head raised. Then call the doctor. Cold wet cloths should be placed to the head, these being sterile in case there are skull wounds. The colder the cloths the better, except that ice-bags usually need not be used, unless over wet cloths. If there is any bleeding from nose or ears make no attempt to stop it, as it will stop of its own accord before it does appreciable damage.

Fracture of the Nose. Direct violence causes this injury, which is deforming. Usually, in such cases, the bones can be moved, to produce crepitus. Use cold applications, with the patient's head held somewhat backward. Deep inhalations will aid in stopping the hemorrhage. (See under *Hemorrhage*.) Leave the nose alone unless a doctor cannot be secured, in which case manipulate gently into position and then let it alone. Since these bones heal within a few days, it is necessary that they be put into position without great delay to prevent pronounced deformity.

Fracture of
the Nose

Fracture of the Lower Jaw. Some forcible injury usually causes this. Aside from hearing the bone break, the patient feels severe pain like toothache and it is impossible to bring the upper and lower teeth into alinement. Crepitus usually is present, also bleeding from the mouth, since there is usually a compound fracture into the mouth. Get the doctor. It is well, however, to bind the broken ends against the upper jaw, using a tailed bandage. (See *Bandaging*.)

Fracture of
the Lower
Jaw

The Collar-bone (clavicle) is of such shape and in such position that its fracture is one of the most common of all such injuries. Falls upon hand, elbow or shoulder, or a direct blow to the bone may break the clavicle. It is so near the surface that its fracture is easily discerned. The shoulder drops downward, forward and inward. Pain is present at the seat of fracture, with deformity. The break usually is at the junction of the middle and outer thirds. Green-stick fracture of this bone often occurs in children, there being little deformity, little disability and no crepitus. In adults there

Fracture of
the Collar-
Bone



Triangle bandage applied as a sling; also additional bandage applied to forearm.

is loss of power in the arm. While awaiting the doctor merely place the patient on his back with just the head raised, allowing the shoulders to rest on the bed. If a doctor's aid cannot be secured, place in the armpit a wad of some soft material about three inches thick at the upper end and one inch thick at the lower. The elbow is pulled well in to the chest to level the shoulder outward. Now fix a triangle bandage as a sling around the forearm of the

injured side and around the neck, then another similar bandage around the same arm and around the chest. The forearm should be well up on the chest.

Arm Fracture occurs often, from falls directly upon the bone, or upon the hand or the elbow, sometimes from a blow. Aside from the usual symptoms the arm hangs limp. Make the patient comfortable with pillow or other suitable padding, handling the arm very carefully. Place a pad in the armpit four inches long and an inch thick, place a suitable padded splint along the upper-arm on its outside, and bind it to the chest with suitable bandage. Put a sling over the shoulder of the affected side, under the chest bandage and at the wrist of the injured side. If the upper-arm is broken close to the elbow, put on an upper-arm splint and one along the forearm,

these two at right-angles to each other, and fix the sling for the forearm at the wrist. The two sections of the right-angled splint should be fastened firmly together before the splint is applied to the arm.

Elbow Fractures usually should be splinted with the right-angled splint and supported with the sling at the wrist, as described above.

Forearm Fracture is easily diagnosed when

both bones are broken, but it is sometimes difficult to make the diagnosis when only one bone is broken. A doctor is required to set a double forearm fracture if deformity is to be avoided. In applying splints the thumb should be uppermost. One splint should be on the back of the forearm, the other on the front, both extending from the elbow to the fingers.

Colles' Fracture is one due to force on the hand, as in a fall, the lower fragment being driven upward and somewhat twisted, to give the "silver-fork" deformity. Often this fracture is reduced with difficulty. Many doctors do not attempt to reduce it in elderly patients. It heals rapidly, but because of the tendency to stiffness, there should be massage and passive movements as soon as possible. The splint used should be shaped somewhat like a flat glove, with the "hand" of the "glove" pointing down. This should be applied (well padded)



**Elbow
Fracture**

Triangle bandage applied as a sling, and a fixation bandage applied to right arm.

**Forearm
Fracture**

**Colles'
Fracture**

to the outside of the forearm and the hand, the thumb up and the hand bent somewhat toward the little-finger side, pointing diagonally downward.

**Hand
Fractures**

Fractures of Hand and Fingers are best splinted on a padded flat splint that extends from the finger tips to above the wrist; or they may be bound around a cylindrical splint, such as a padded piece of broom-handle or roll of stiff paper.

**Rib
Fractures**

Rib Fractures are common, being due to blows or falls on the chest, or compression of the chest. The usual stabbing pain is marked on inhaling; hence the breathing is short and jerky. If the lung is injured also (a serious complication), there will be coughing with spitting of blood. An almost sure sign of rib fracture is the appearance of pain at the injured site when the damaged ribs are pressed some distance from this site. The patient should lie on the affected side, the rib movement being further restricted by placing a broad bandage about the chest. Straps of adhesive plaster three inches wide make the best dressing. They should begin two inches from the spine on the uninjured side and extend around the injured side to the middle of the chest, each strip overlapping the preceding one until the bandage extends three inches above and three inches below the fracture.

Fracture of the Spine.—See *Back, Broken*.

**Fracture of
the Pelvis**

Fracture of the Pelvis (hip-bone) is the result of a crushing injury or a severe fall upon the buttocks or on the feet. The pain is severe and the power of locomotion lost. The organs within the pelvis are often injured by such fractures. The patient should have absolute rest and quiet on the back and a bandage should be placed about the hips as snugly as possible without too great tension.

**Fracture of
the Thigh**

Fracture of the Thigh is troublesome because of the contraction of the powerful muscles of the lower extremity. The break may occur in one of several places. Severe blows are necessary to break the bone along its shaft, except in the case of aged people. In these cases an insignificant force may suffice to break through the small of the neck of the bone, at the upper end. Besides the other symptoms usual in fracture there is an outward turning of foot and leg and pronounced shortening. Sometimes the broken ends are driven into each other, making an impacted fracture.

Place the patient on his back and bring the injured leg, gently and with some traction on the foot, beside the sound limb. Barrel-staves or pieces of board, broom-handles, umbrellas, canoe-paddles, rifles or other articles of a like nature may be used for splints. One splint should reach from the armpit to beyond the foot along the outer side of the extremity; another should reach from the buttock to the heel, at the back; and a third should be on the inner side of the extremity, from the crotch to the foot, though the sound limb may serve as this inner splint. Any suitable padding should be used on the splints, which are applied while gentle traction is placed on the foot, then bound to the body by any suitable straps. These should go about the splints and the chest, waist, hips, thigh, knee, calf and foot. Even if an inner splint is used the sound limb may be used for additional support.

Applying
Splints in
Thigh Frac-
ture

If a doctor's aid cannot be secured for several days, the case should be cared for as follows: After removing the clothing by ripping at the seams, leaving shoes and stockings on, place the patient on a flat bed, then cut away part of each side of the shoe under the instep, leaving the sole intact. Now apply the splints as directed above. Put through the holes made in the shoe a suitably heavy strap or rope to sustain a weight of several pounds, at the other end of which tie a pail or other container for stones, bricks or other weights (twenty pounds part of the time). Raise the foot of the bed eight inches, and suspend the pail over this end. By the resulting traction on the leg, the powerful muscles will be exhausted so the bone-ends may be drawn together. Healing will usually require eight or ten weeks. Special care must be given to the back of the patient to prevent bed-sores. (See *Bedsore*s in Section 7.)

Fracture of the Knee-cap results from a fall on the knee or on the foot. The foot drags when walking is attempted, since it cannot be kicked forward. A splint should be applied along the back of the leg from the buttock to the heel, the hollow behind the knee being filled with special padding. The limb should be somewhat elevated. Cold applications may be made to the injured part.

Fracture of
the Knee-Cap

Fracture of the Leg (below the knee) may occur from blows on the legs or falls on the feet. Both bones are usually

Applying
Splints in
Leg Fracture

broken, though sometimes but one, ordinarily the fibula (the small outer bone). Because of the nearness of the bones to the skin great care must be used in handling these fractures to avoid breaking the skin, thus making a compound fracture. Two splints of suitable length (reaching from above the knee to the foot) may be rolled in a blanket, a towel or other material to form a hammock, the leg being laid between them. The splints are then placed one on the inside and the other on the outside of the leg. A bandage above the knee and at the foot will hold them in position. Or a pillow may be made into a trough to be secured under and about the leg. Traction should be applied to the foot while the splints are being adjusted.

It may be found that there is a compound fracture (a broken bone with attendant injury to surrounding structures, and with protrusion of bone through the skin). In such a case it is best to leave the correction to a doctor. But if necessary the wound may be cleansed with boiled water and gauze.

Fracture of the Foot usually results from a weight falling upon it. The extremity should be elevated and cold applications given, the pillow hammock being the best temporary splint.

Symptoms
and Treat-
ment of
Freezing

FREEZING.—The types may be a very mild degree; a second degree, or “frost-bite”; and a third degree, or “general freezing.” In “frost-bite,” which is local, the cold, tingling and aching give way to numbness and finally absence of all sensation. The color changes from red, through purplish, to white. In general freezing the senses gradually become benumbed and the patient gets drowsy, lapsing into unconsciousness as his body stiffens and becomes more or less shrunken. The treatment formerly given for both conditions is friction with snow or ice-water in a cold room, the temperature being very gradually raised as the color changed to pink and sensation began to return. The extremities were elevated to reduce pain and limit congestion, dry-hand or flannel friction was given after reaction began, and artificial respiration was used if necessary. Then the patient was wrapped in blankets and hot drinks were given from time to time. This treatment is still employed by many doctors and laymen.

But the warm-water treatment is becoming progressively

more popular. In it the part affected, or the entire body except the head in case of general freezing, is immersed in barely warm water, the temperature of which is raised *very* gradually until it is as hot as the patient can comfortably endure. With this treatment, provided the temperature of the water is raised very slowly, covering from one to two hours or even longer, there is usually less danger of after-effects from the freezing than by the older method. Gentle friction may be given during immersion, and the patient may be wrapped in blankets later.

If you should ever find yourself on the verge of freezing, with strength failing, when exposed to intense cold under circumstances which make it impossible to find or reach ordinary shelter, the safe thing to do is to find a big snow-drift (provided there is snow, of course) in a ravine or upon the sheltered side of a hill, dig your way deep into it and settle down. Keep in motion, no matter how painful or great the effort, until you can find such shelter. It would be much safer not to sleep even after getting into the shelter, at least until certain that you are much warmer than you were before.

Lying in
Snow to Pre-
vent Freezing

FROST-BITE.—See immediately above.

GAS POISONING, ILLUMINATING.—See under *Asphyxia*.

GUNSHOT WOUNDS.—See under *Wounds*.

HANDKERCHIEF BANDAGE.—See *Bandaging*.

HANGING, SUICIDAL.—See *Strangulation*.

HEAD INJURIES.—See *Wounds*, also *Skull Fractures*, under *Fractures*.

HEAT EXHAUSTION.—This is a form of heatstroke having symptoms of extreme prostration, a subnormal temperature and collapse. The patient is cold and pale, with clammy skin and rapid pulse. These cases should be given plenty of fresh air, which should be slightly cool at first, if possible. Hence they should be taken to a shady, ventilated place. Heat to the feet will be beneficial, sometimes covering the entire lower extremities. Blankets may be wrung from hot water, tested with the hands to insure against scalding, wrapped about the extremities and then covered with an outside wrapping of several folds of dry sheet to retain the heat as long as needed. Small drinks of hot water should be given frequently, to heat the body and maintain fluidity of the blood.

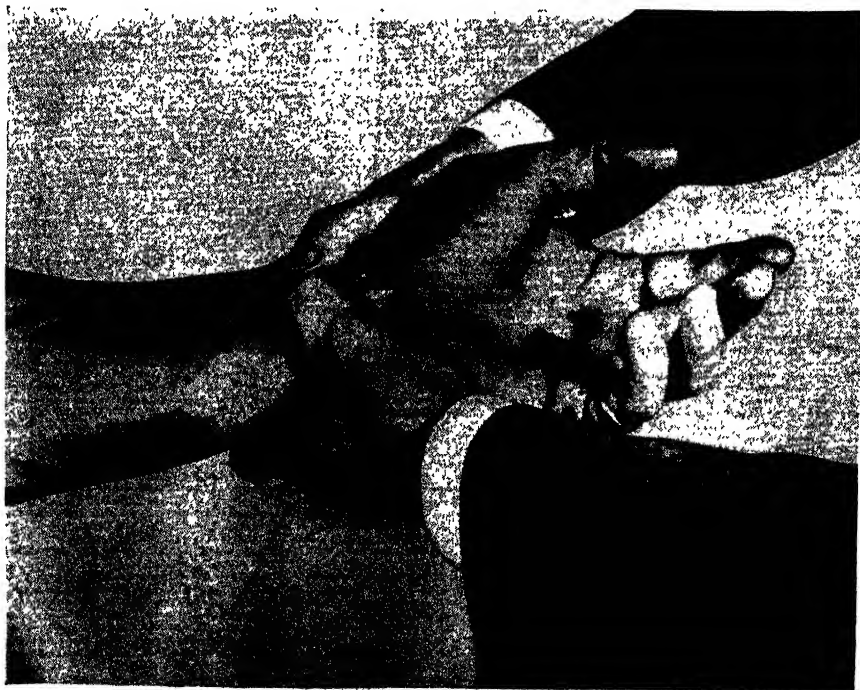
Heat
Exhaustion

HEAT PROSTRATION.—See *Heat Exhaustion*.

HEMORRHAGE.—Hemorrhage, or bleeding, is the escape of blood from arteries, capillaries, veins or heart. Arterial bleeding is the most serious type. In this the blood often comes in spurts and is bright red. Venous bleeding is next in severity, the blood flowing evenly and being dark red. Capillary bleeding is least dangerous, being an oozing of blood, usually bright red. Bleeding usually results from an external wound, or from disease of the blood-vessel wall that makes a rupture of the vessel possible with slight injury or strain. In some cases hemorrhages occur because of an abnormal condition of the blood, in which it clots (coagulates) less rapidly than normally, permitting much bleeding from what should be insignificant injuries.

**Symptoms of
Hemorrhage**

The symptoms of hemorrhage may be nothing but the appearance of the blood and the wound, or, in case of internal injury, there may be no symptoms at all unless considerable blood is lost. Usually much blood may be lost before general

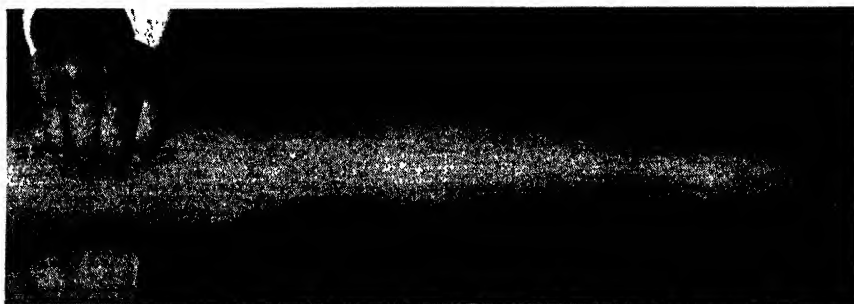


Compression of the radial artery in the wrist for wounds in the hand. This is the artery made familiar by its use for the taking of pulse beats.

symptoms develop. But if the bleeding continues, weakness, faintness and restlessness develop, and the skin becomes pale, cool and clammy. The pulse will speed up, sometimes going to 180 to 200 a minute, then grow weaker until it can be felt no longer. The patient becomes thirsty, anxious and starved for air. His breathing becomes rapid and shallow, increasing up to 40 or even 60 respirations a minute (the normal being 16 to 20 a minute), finally becoming jerky gasps. Vision dims, the pupils dilate, ringing in the ears develops, the patient becomes dizzy and nauseated and sighs often. If the bleeding continues the patient becomes unconscious, then the breathing stops and death ensues.

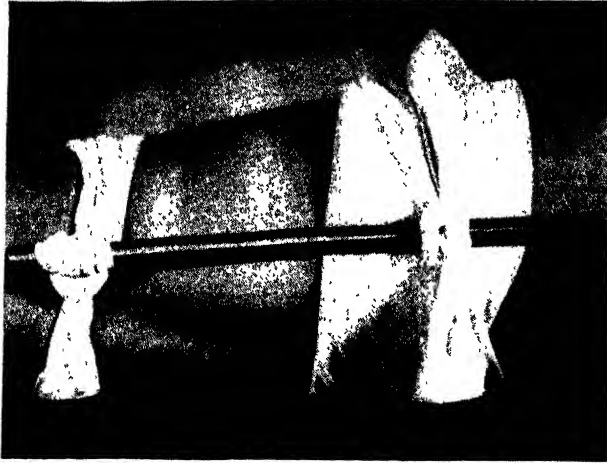
As soon as bleeding is recognized as a hemorrhage, call the doctor. The patient must lie down, with the bleeding extremity elevated, or with the head and chest raised if the wound is in the head or neck. Quick work will be necessary in case of a wound to a large artery with free bleeding. The wound should be exposed (clothing removed) and pressure should be applied to it, either with the thumb or by binding tightly to it a pad of any sterile gauze or cloth available. The wound may bleed enough to saturate the cloth, but usually this will soon be checked by clotting. If it is not checked pressure should be applied between the wound and the heart. This pressure may be made directly to the artery if its location is known; otherwise a tourniquet should be applied about the extremity (if the wound is in an extremity) on the side toward the heart. In case of venous hemorrhage, pressure should be applied on the side away from the heart.

**Treatment
for
Hemorrhage**



Compression of the brachial artery, which passes along the inner border of the biceps muscle. First extend the arm, then apply pressure with all four fingertips, outward and backward, in the middle of the upper arm.

The
Tourniquet



Tourniquet applied to the left thigh to compress arteries and control hemorrhage. The stick or other object used for the tourniquet may be kept in place by the loose bandage or other appliance encircling the upper leg, as shown.

The simplest form of *tourniquet*, one quickly applied and always at hand, is a bandage (the triangular form being excellent), such as a handkerchief or a necktie, or other suitable strip of material loosely

tied about the extremity, with the hand of the attendant passed between the two as far as the thumb. The bandage is then twisted by turning the hand until the bleeding is checked (see illustration). Instead of the hand any suitable lever, such as a cane, a ruler, an umbrella, or a gun-barrel, may be used, being turned sufficiently to stop the bleeding and then tied at its free extremity by another bandage (knotted as loosely as compatible with holding the tourniquet in place). If the location of the artery is known, some rounded object, preferably somewhat padded (stone, roll of paper or cloth) may be placed over it, but under the tourniquet before the latter is tightened. This is called the *Spanish windlass*, or *garrote tourniquet* (see illustration). A *stock tourniquet* is made of two sticks, about eight inches long, placed crosswise of the extremity, one on each side, and bound together at each end, one stick compressing the artery. The *Esmarch tourniquet*, the one used by surgeons, consists of a rubber strap four or five feet long wrapped about the part fold over fold and secured at the end with a hook attached to a chain on the other end. Tourniquets greatly interfere with the circulation, and therefore unless a limb is so injured that amputation is necessary or part of it is already lost, the ap-

The Spanish
Windlass

The Esmarch
Tourniquet



Compression of the axillary artery, best reached in the manner illustrated, after first raising the arm, by pressing with all finger-tips outward and backward against the bone of the arm.

pliance never should be left on more than an hour or two. After having been on for this length of time it may be removed if loosened very slowly and compression made to the wound (to assist the clot) with gauze or other sterile material. If it is found unwise to remove it entirely it

may be reapplied or left only partly loosened.

If the hemorrhage is venous the procedure is the same, except that instead of applying the tourniquet all constrictions between the wound and the heart should be removed or loosened.

Capillary bleeding usually is easily controlled by simple compression, though often hot or cold water may be used successfully. The combination of heat or cold and compression is the best treatment.

Constitutional treatment should be given in all cases of severe hemorrhage, after the hemorrhage has been arrested. Rest is essential. The head and the shoulders should be lowered, the feet elevated. External heat by any convenient means at hand should be used. Stimulants are not necessary, but simple hot drinks are helpful. These should be in considerable amounts, to replace the fluid portion of the blood.

Oozing cuts and wounds of small size are usually treated successfully by compression, or by cold applications, or, especially, by styptic sticks or alum. Many people use cobwebs

Oozing
Abrasions



Compression of axillary artery by forcible flexion. Place a hard pad well up in the armpit and then bind the arm tightly to the side, as illustrated.

successfully, but if these are gathered from dusty places they may cause trouble. Such oozing may also be stopped by a little lemon juice or vinegar on gauze, cotton or handkerchief, or by a drop of chloride of iron, or tincture of iodine applied with a cotton swab.

See the illustrations showing the locations of arteries and the points for pressure to stop hemorrhage in wounds involving these arteries. While only the arteries are indicated (in red

dashes), it should be remembered that the veins run alongside the arteries, draining the parts these arteries supply.

As more is to be learned from demonstration or by the visual sense than by description, the exact anatomical points at which to exert pressure to control bleeding will not be given by detailed description. The illustrations, together with the text immediately below them, supply the knowledge necessary for the application of first-aid treatment in case of hemorrhages. However, a few brief comments regarding bleeding from some specific locations may be of additional value.

Incised scalp and face wounds bleed freely, but should cause no alarm unless the bleeding is in spurts. Simple compression will control. This is very easily given in case of the

scalp, because of the underlying skull. Pressure, in arterial hemorrhage, should be on the side from which spurting comes. In neck wounds it is necessary to give pressure properly as regards direction as well as location. In bleeding from the carotid artery the pressure is to be given below the wound, backward and inward against the spine, between the windpipe and the sternomastoid muscle. The pulse-beat can be felt when on the artery. If the

bleeding is venous, pressure is given either directly into the wound or both above and below it, for the jugular vein bleeds from the heart side as well as from the other side. Deep and firm pressure is necessary to stop bleeding from the subclavian artery, as in *shoulder and upper-arm wounds*. The pressure must be downward, behind the middle of the collar-bone, against the top of the first rib. This is a tiresome pressure to give, so one thumb may assist the other, or relieve it if the pressure cannot be interrupted.

Arm bleeding may be controlled by hand pressure, as shown in the illustrations, on the axillary and brachial arteries, or a Spanish windlass already described under *tourniquet* may



Compression of the brachial artery by forcible flexion, placing the pad in the bend of the elbow, flexing the forearm hard against the upper arm, and then binding in place tightly.

**Arm
Wounds**

Bleeding
Control by
Tourniquet



Compression of both facial arteries with thumb and finger. This artery passes over the lower jaw at a point one inch in front of the angle of the jaw on each side. Both should be compressed at the same time, with thumb and finger, as illustrated, for any wound in the face, since there is a free connection between them.

be used, or the arm may be bound to the side of the chest, with a firm pad in the armpit. Bleeding along the forearm may be controlled by tourniquet or, usually better, by binding the forearm to the upper arm over a firm pad in the bend of the elbow. Hand bleeding may be checked by a tourniquet about the wrist, or by finger or thumb pressure on one or both sides of the wrist (thumb and little-finger sides). Arches of arteries deep within the palm, fed by arteries on each side, often cause profuse bleeding from deep wounds in this area.

Illustrations show the location and direction of pressure in thigh wounds with bleeding, the pressure to be straight in toward the bone. It is better to reinforce one thumb with the other. A Spanish windlass or Esmarch tourniquet may be applied, also. Bleeding from leg wounds may be checked by bending the knee acutely over a pad placed in the pop-

lital space, a bandage going about the shin and the thigh.

Hemorrhage from the lungs (bright red), if not due to injury, is usually due to tuberculosis. It is alarming chiefly as an evidence of the disease of the lungs, but is seldom directly fatal. The patient needs rest, so should recline with the head and shoulders raised. He should have all the air it is possible to secure, and a cold towel, wrung out of cold water as often as it gets warm, should be placed over the chest. This is better than the ice-bag. Pellets of ice may be given the patient to swallow, also small sips of cold water. Eating a little salt is sometimes beneficial in these cases. Hot applications, if they give comfort, may be made to the feet.

Lung
Hemorrhage

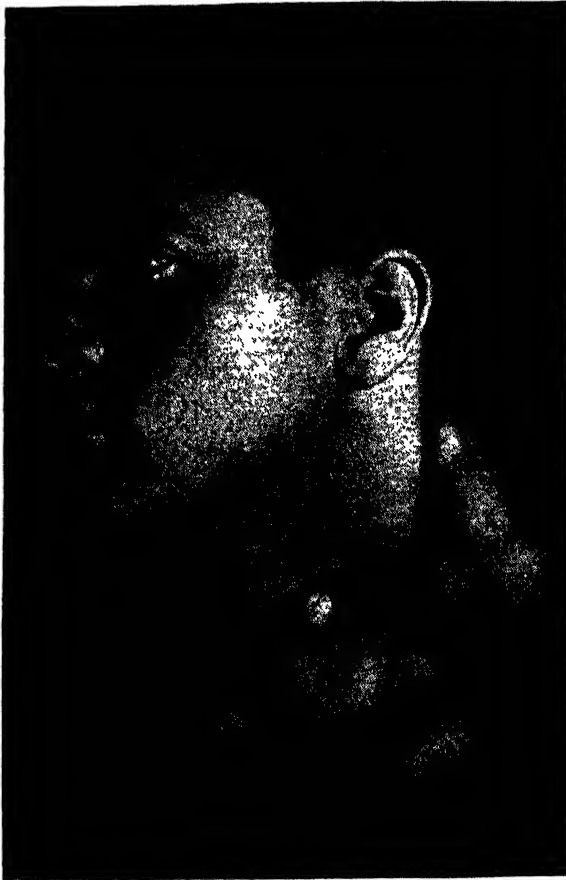
Stomach hemorrhage is usually dark (called "coffee-ground"). The patient should rest on the back, with ice-bag or ice packs or ice-cold compresses over the stomach. Very hot drinks of plain water (as hot as the patient can possibly take), or very cold water, are usually beneficial; but often better results will be obtained merely from the cold external applications while all food and drink are withheld.



Stomach
Hemorrhage

Compression of the temporal artery, best applied with the thumb at a point one finger's breadth in front of the opening of the ear, pressing firmly against the bone.

Bowel
Hemorrhage



Compression of the common carotid artery, the most important of those supplying the head. Press deeply and firmly with thumb, at a point one and one-half inches above the joint between the sternum and the clavicle. Press backward and inward.

Hemorrhage from the bowel usually results from hemorrhoids. It never endangers life. With the patient resting on his back, small injections into the rectum of either cold or hot water should be given, taking care, of course, not to have the hot water too hot. Or the cold sitz-bath may be used. Cold compresses to the inner surfaces of the thighs are also beneficial. The ice-bag directly to the anal outlet may likewise stop the bleeding.

Hemorrhage from the uterus (often called flooding) requires rest

in bed on the back with the hips slightly elevated. This may be accomplished by raising the foot of the bed or, better, the foot of the springs. Cold compresses to the inner surfaces of the thighs, a cold lumbar compress, or a very cold pelvic pack, with hot applications to the feet at the same time, are excellent. The ice-bag over a cold wet compress will prove satisfactory. Sometimes the cold foot-bath for not over sixty seconds is excellent, also the cold sitz-bath and hot foot-bath, but the latter procedure should not be used in case of pelvic pain associated with the bleeding.

Urethral hemorrhage may be due to an intentional or playful kick, or to a fall astride a fence or bar. Pressure directly upward into the crotch will usually stop it. If one has a square-handled cane or umbrella the handle may be pressed into the crotch while the weight of the body is rested on the article partially as on a third leg.



Urethral Hemorrhage

H E M O R - R H O I D S , P R O - L A P S E D O R S T R A N G U L A T E D .—This condition re-

Compression of the occipital artery, supplying the back of the head. This artery passes behind the mastoid process, and may be compressed at a point two fingers' breadth behind the center of the back of the ear.

quires cold local applications and pressure, best given with the patient lying down. There sometimes is much greater relief, however, from hot applications (fomentations). After either the cold or the hot applications a well-oiled finger should give gradual pressure to return the hemorrhoid within the anus. The same treatment will take care of most cases of bleeding hemorrhoids, but if the bleeding is internal, or if external cold or an ice-water injection does not check it, a physician should be called. However, hemorrhoid bleeding is rarely a directly serious condition.

H E R N I A , S T R A N G U L A T E D .—A hernia that “comes out” and then becomes caught in the hernial opening (strangulated) will cause serious trouble, even death within a comparatively short time, if it is not reduced. Some of these will reduce

Strangulated
Hernia



Compression of subclavian artery with both thumbs. This artery passes across the upper surface of the first rib and behind the clavicle. The shoulder should first be drawn downward and forward, pressure being then applied downward and backward and inward at a point behind the middle of the clavicle, or back of the hump which is so conspicuous at this point. Press downward and inward.

spontaneously, though the majority require assistance, sometimes surgical. Possibility of strangulation is the only immediate danger of hernia (rupture). Those who have had hernia for a considerable time can always reduce it better than anyone else, so usually no first-aid treatment is necessary except what the patient must apply. To reduce, the patient should lie on the back and flex the thighs, with the feet resting close to the hips, and the latter higher than the shoulders.

Very hot fomentations should be applied to the hernia, or the hot-water bottle may be applied over a wet cloth; then the mass should be gently compressed between the fingers in an effort to return it to place; but do not use force, and do not continue this manipulation long. After the hernia is reduced it should be bandaged with a triangle bandage, twisted, encircling the thigh, crossed over the hernial opening, and passing around the waist and there tied. This should be the treatment when a hernia appears for the first time, also, as well as for the hernia that comes down under a truss. But a doc-

tor should be consulted with the first appearance of the hernia.

HYSTERIA. "Going into hysterics" is a form of nervous derangement, a psychoneurosis, characterized by disorders of the will, with reduction or exaltation of different brain functions. The symptoms vary markedly in character, ranging from attacks of nervous excitement and simple nervous instability, with causeless laughing or crying, to muscular contractures, convulsions and various disorders. It often follows some manifestation of emotion in those who never have learned self-control. Uncontrollable laughter or weeping is a simple and common form. More serious forms may be manifested by jerky movements and convulsions, the patient often falling, though almost invariably selecting a safe place (a bed or a sofa) for this collapse. There is no biting of the tongue or lips, as in epilepsy. An attempt to pull the eyelids open reveals a quivering of the lids and a resistance to the attempted opening.

The treatment is to *let the patient alone*. If a bystander expresses alarm or sympathy, the "spells" are likely to continue and progress in severity. Ignoring the condition will usually bring about a cessation of the phenomena. A dash of cold water in the face usually helps much toward bringing the patient out of the spell, which will verify the diagnosis of hysterics; or gradually increasing pressure may be given, with good results, to the nerve emerging at the inner end of the eyebrow. Cold water affusion to the head and face is excellent. In mild attacks the patient may be induced to take a hot foot-bath

Treatment of
Hysteric
Spells



Compression of the superficial femoral artery, with both thumbs, one upon the other.



Compression of the femoral artery, which passes down the center of the upper thigh. Compression should be made with both thumbs in the groin as illustrated, pressure being applied directly downward, or, lower down, four fingers' breadth below the fold of the groin, pressure here applied outward after the knee has been bent and the thigh rotated outward.

INSENSIBILITY.—See *Unconsciousness*.

INTOXICATION.—The symptoms of drunkenness are well known—unconsciousness but with ability to make some response upon arousing; red eyes, bloated face, equally dilated pupils, subnormal temperature, flapping cheeks, smell of liquor. One should not jump to the conclusion, however, that an unconscious person, with some of these symptoms, is “dead drunk,” merely because of the odor of liquor on his breath. He may be a victim of apoplexy or sunstroke, or concussion of the brain from a fall, having been drinking before he became unconscious. Drunkenness is best treated by an emetic to induce vomiting—a teaspoonful of salt or ground mustard in a glass of water, or a tablespoonful of ipecac if at hand. While often difficult to use, a stomach-pump is the best means of emptying the stomach. After clearing the stomach some stimulant may be given, such as

with a cold turban to the head, or to drink hot water or hot lemonade. As soon as possible a neutral immersion bath (92 to 95 degrees F.) should be given for its sedative and quieting effect.

INJURY.—See *Hemorrhage* and *Wounds*, also *Fractures*.

INSANITY, SUDDEN ATTACKS OF.—See *Mania*.

INSECT BITES.—See *Stings and Insect Bites*.

INSECTS IN EARS.—See *Ear, Foreign Body in*.

**Drunken-
ness**

hot coffee. A cold application of some kind (shower, immersion or pour) is serviceable also.

IVY POISONING.—If the hands or other parts exposed to poison ivy be washed vigorously, even scrubbed with a brush and soap and water, as soon as possible after exposure, there will usually be little trouble. The poisonous property being a non-volatile oil, an alcohol wash is also excellent to remove it, so should be used after the washing or scrubbing. Carron oil (equal parts of lime-water and linseed or olive oil) applied freely and frequently to the affected parts will relieve the itching and help to prevent spreading. Bicarbonate of soda may also be rubbed dry into the skin even though it be covered with the carron oil. Ice-cold compresses are soothing, as also are washes of saturated solution of Epsom salts, which latter may be applied with compresses with good effect. Ordinary salt or baking-soda solutions are often soothing, especially if there are blisters. Other names for this plant are Poison Oak, Poison Vine, Climbing Sumach, Mercury, Three-leaf Ivy, Poison Creeper, Piery, and *Rhus toxicodendron*, the botanical name of the plant.

Poison Ivy

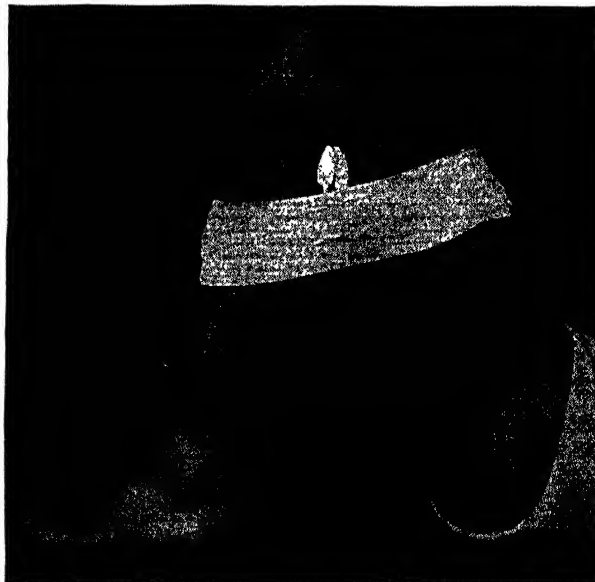
JAW, DISLOCATION OF.—See *Dislocation of the Lower Jaw*.

JAW, FRACTURE OF.—See under *Fractures*.

KNEE, DISLOCATION OF.—See under *Dislocations*.

KNEE - CAP, FRACTURE OF.—See under *Fractures*.

KNEE - CARTILAGE DISLOCATION.—Most people who have been associated



Compression of the popliteal artery by forcible flexion, placing a hard pad in the bend of the knee and then binding tightly.

Dislocation
of Knee-
Cartilage

with athletes have met those taking part in various athletic activities who suddenly fall or cease activity and complain of severe pain in the knee, which is partly flexed and seemingly locked in that position. The pain and discomfort are found upon pressure to be localized at the inner side of and below the knee-cap, where a small rounded eminence can be felt. Usually or frequently the same thing has happened once or several times before. "Slipped cartilage" is the condition. If a doctor is not procurable the patient may correct the condition himself or another may do it for him. An assistant may grasp the patient's ankle, and, placing his own knee against the outside of the patient's knee, force the latter inward while holding the ankle. Now, if the knee-joint is gently flexed and extended while pressing upon the slight swelling felt at the point of pain (inner side of knee-cap), the cartilage will slip back, allowing the knee to be straightened. It is well to splint the knee with suitable board or other article behind or to the side of the leg, to secure the leg against bending. Cold compresses continued for a half-hour and repeated a few times will usually remove the soreness and tone up the tissues.

LEG, FRACTURE OF.—See *Fractures*.

LIGHTNING STROKE.—See *Electric Shock*, under *Burns and Scalds*.

LITTERS.—See *Carrying a Patient*.

LUNGS, BLEEDING FROM.—See under *Hemorrhage (Hemorrhage from the Lungs)*.

MANIA.—Not infrequently mania develops suddenly in country places or where it is impossible to secure professional help at once. In these cases much may be done to diminish cerebral hyperemia and the resulting excitability. One of the best procedures is immersion to the chin in a warm or neutral bath (95 to 98 degrees F.), combined with cold affusions or cold compresses to the head (provided the face is not abnormally pale), this procedure to continue until its sedative influence produces quiet. There can be no harm in keeping the patient in the neutral bath for hours or even for days, if the case is sufficiently severe to require it. The application of cold compresses to the head is one of the most effective procedures for relieving the cerebral congestion, though any cold application, even merely wetting the hair, will do. If the

Mania

tub bath is not available a hot-blanket pack may be given to the lower extremities, or a hot sitz-bath may be given in a wash-tub, with the cold turban to the head. An ice-collar is effective, also, but preferably should be applied over cold wet cloths. A wet girdle, well protected with dry flannel, is excellent. The prolonged neutral bath at bedtime, or the neutral wet-sheet pack, or the enema (neutral or slightly warm), will usually help to induce sleep in case of insomnia. If exhaustion is marked, rest in bed is indicated. A cool bath and light friction twice a day will also help. A fruit or fruit-juice diet should be used for a while to reduce the toxemia and a milk or sour-milk diet may follow, otherwise a diet mainly of fruits, vegetables and milk. The enema should be used daily if required. The above water applications should be used in all cases of great mental excitement, using a hot foot-bath instead of the full bath when the latter is not available.

Large hydrotherapeutic institutions handling cases of mania and insanity usually are provided with what may be called a hammock bath, an arrangement suspended upon straps which makes it possible for the patient to lie in the bath with perfect comfort, while the straps may be used in violent cases for purposes of restraint. In the absence of such facilities it will be necessary, in cases of violence, to tie the patient—sometimes to tie the feet, the knees and body to a board.

**Mania and
the Hammock
Bath**

In other sudden attacks of insanity and the mania which results from head injury, also in delirium tremens, water treatments such as are advised above should be given. However, in melancholia a short neutral bath, of fifteen to thirty minutes, should be followed by a cool or cold douche, shower, affusion or other stimulating treatment. In all these cases the patient should be induced to drink water freely, especially hot water. Full hot enemas (110 degrees) should be given before or after the bath. Often it is well completely to fast the patient except for water during the acutely excited conditions.

MENTAL DISEASES AND DISORDERS.—See *Mania* above.

MOUTH, BLEEDING FROM.—See *Skull Fractures*, under *Fractures*.

MOUTH, FOAMING OR FROTHING OF.—See *Epilepsy*.

NAILS, BRUISED.—See *Contusions*, page 3008.

NECK, BROKEN.—Sometimes, as a result of falls or other **Broken Neck**

injuries or attempted suicide, the neck may be broken. Death may have taken place instantly, but often life is present. These cases require expert attention when at all possible to secure. If such attention cannot be procured and the heart it still beating, the patient should be laid flat and artificial respiration given, also external heat and friction. Great care is necessary not to injure the neck further in moving the patient. (See *Unconsciousness*.)

NECK, WOUNDS OF.—See *Hemorrhage*.

NERVES, SEVERED.—See *Wounds*.

N O S E B L E E D.—Nosebleed usually stops without any treatment, before harm has been done. But if protracted, contraction of the blood-vessels of the nasal passages may be brought about by ice-cold applications to the face and the upper part of the spine. Stretching the arms overhead, or holding the head back and breathing through the nose (expectorating the blood that runs back into the throat), or the combination of these two measures, will usually stop the bleeding quickly. Salt water or dilute vinegar or lemon juice snuffed up the nose sometimes stops it. A small tightly twisted tuft of cotton placed in the nostril, with pressure applied over it by pinching the nose, often helps, as also does a wad of cotton or gauze under the upper lip. Hot applications to the feet will help; though often a hot foot-bath with ice-bags to the head and the back of the neck, or to the face and the back of the neck, will be better. *If the bleeding is the result of a fractured skull no attempt should be made to stop it.* This holds true, also, for bleeding from the ear and from the mouth in skull fractures.

N O S E, F O R E I G N B O D Y I N.—Children often put some object, such as a pea or a bean, a grain of corn, a shoe-button, a bead, or a pebble in the nose. Usually it can be seen, sometimes not; but there is difficulty in breathing through that side, as well as increased secretion from and increasing irritation of the affected nostril. Sometimes the child will give the information, often he is too frightened to do so. If the child is old enough to blow its nose, the object may be dislodged by his blowing through the obstructed nostril (after taking a full breath through the free one), the latter closed with the finger. Tweezers or forceps may be able to crush grains, after which they may be blown out. Or a slender hook or

Foreign Body
in the Nose

bent hairpin may be worked to the back of the object, when it may be dislodged forward. If a little warm salt water is injected into the open nostril, which then is closed about the nozzle of the bulb, and the patient induced to say "Ah" (gently), the object may be dislodged. Grains should be removed as soon as possible, as they may swell. But gentleness is always necessary.

Nose, Broken.—See under *Fractures*.

PAIN.—Pain is a signal that some cerebrospinal nerve, or its center, is overstimulated or injured. In other words, it is a warning or sign that something is wrong. Its location and character may or may not denote the cause, for pain is often referred. That is, the sensation we call pain is often at some point other than the point of stimulation or irritation. Pain is a sensation evolved for the benefit of the individual, regardless of the fact that it may be so extreme as to depress vital functions or bring on nervous exhaustion or shock. Pain stimulates muscular contraction, the purpose of which is protection from injurious influences. This protective influence is most obvious in the drawing of the body or a part of it from such injurious influences as, for instance, a hot stove. The most sensitive parts of the body are those most often exposed to injury. Thus the skin is particularly sensitive to pain.

Pain is described variously as burning, stabbing, tingling, tearing, bursting, throbbing, griping or colicky, gnawing, boring, darting, shooting, and so on. The relief of pain in emergencies may sometimes be more important than any other phase of first-aid treatment; or the pain may be ignored while taking care of more urgent conditions. In fact, other conditions are often of more concern than the pain, severe as the latter may be, as in hemorrhage from destructive injuries. In the treatment of pain the chief aim should be, when possible, the removal of the cause. Since this often cannot be done in emergencies, then treatment to soothe the irritated nerves is necessary. (See *Burns and Scalds, Fractures and Wounds*.)

As a rule, local applications of heat, by any convenient means, relieve pain more quickly and completely than does cold; yet in many instances cold is more effective. The selection of one or the other often depends upon its agreeableness to the patient. Elevation of a member, pressure, counter-

Pain

First-Aid
Treatment
for Pain

irritation, diathermia or other electrical treatment—all have their place as pain-soothers. One should not lose sight of the fact that severe injury may produce shock, even though a patient be unconscious (from the injury or from anesthetic), through bombardment of the brain with nerve-impulses in spite of the unconsciousness. Hence, local soothing applications are very beneficial in preventing or lessening the danger of shock.

**Causes of
Paralysis**

PARALYSIS, SUDDEN, FROM INJURY.—Inability, temporary or permanent, to move a limb or a group of muscles means paralysis. It may result from severing of a nerve, pressure upon a nerve or its center, or destruction of the nerve-center. Often bruising will “deaden” a nerve temporarily, producing transient paralysis; yet this bruising may be of such severity as eventually to result in destruction of the nerve, with permanent paralysis. Sometimes bones are broken, dislocated, or luxated in such a way as to exert pressure upon one or more nerves, with resulting paralysis until the pressure is removed. If the nerve is torn at the same time (or torn without pressure), the paralysis will be permanent as long as the nerve is unrepaired. Often sensation and not motion is destroyed, at other times motion and not sensation will be lost. Aside from making the patient as comfortable as possible and removing any obviously injurious article or material from the body or the injured part, paralysis should receive no first-aid treatment except by a physician. Sometimes spinal vertebræ require adjustment; but unless the person attempting this possesses thorough knowledge of the structures and their normal associations, the condition will not only not be corrected, but irreparable damage may be done.

PATELLA, FRACTURE OF.—See *Fracture of the Knee-cap*, under *Fractures*.

PATIENT, CARRYING OF.—See *Carrying a Patient*.

PELVIS, FRACTURE OF.—See under *Fractures*.

PHARYNX, FOREIGN BODY IN.—See *Choking*.

PILES, BLEEDING.—See *Hemorrhage from the Bowel*, under *Hemorrhage*; also *Hemorrhoids*, Vol. VIII.

POISON IVY.—See *Ivy Poisoning*.

Poisoning

POISONING.—See also *Ptomaine Poisoning*. A poison is any substance which, when taken internally in a single dose

of small size (medically specified as fifteen grains or one cubic centimeter, or less), is injurious to health or dangerous to life. But poisons may also be absorbed into the blood through wounds, or through inflamed areas of skin.

The effects of poisons vary greatly, especially in the first stages; but the final effects of most of them are similar, consisting of mental depression and depression of heart, breathing and other functions. *General poisons* are those whose action is strictly general (aconite, belladonna, prussic acid, strychnine and certain toadstools are examples). *Local poisons* are those whose symptoms are purely local (See *Acid Poisons, Antidotes for*, and *Alkali Poisons, Antidotes for*). *General poisons with local effects* (*general irritant poisons*) are those which have a combination of general and local action (arsenic, copper, iron or mercury, and their various combinations). *Sleep-producing (narcotic) poisons* include chloral, sulphonal, trional and opium (with its derivatives chlorodyne, laudanum, heroin, codein, and morphia).

General and
Local
Poisons

When poison has been swallowed it is urgently necessary that the stomach be emptied immediately. An emetic should be given—mustard, common salt or powdered alum, in the proportion of a teaspoonful of any one to a glass of warm water. Repeat the dose within ten minutes if necessary, and still again if required. If in some location where none of these substances is available but cold water is at hand, this should be drunk freely and vomiting induced by tickling the throat with the finger. *It is imperative that the stomach be emptied thoroughly and immediately.*

Swallowing
Poison

After the stomach has been emptied and cleansed, give raw eggs and milk, or either alone, or egg-white; or give soap, castor oil, or flour and water. Meanwhile hot enemas should be given, one after another. If the patient becomes drowsy and the heart action depressed, fomentations should be placed over the heart and changed frequently, with heat also applied to the feet. If coffee is at hand it may be added (six ounces) to the hot enema for more pronounced stimulation. If corrosive sublimate (mercuric chlorid) or other mercurial poison has been swallowed it will be well to give one or two full rectal injections (to be retained) of an albuminous liquid, such as milk with white of egg beaten into it.

**Hot Bath in
Poisoning**

After the digestive tract has been cleared by continuous vomiting and rectal irrigations, a full hot bath (105 degrees or slightly above) will be valuable in aiding the elimination of the poisons absorbed into the circulation. This bath should be combined with friction. However, unless a special hammock is arranged in the bath-tub so the patient may rest comfortably without effort, the bath should not be used if there is any appreciable degree of exhaustion. A hot-blanket pack would be better in this case. In either case, the patient should continue meanwhile to drink large quantities of milk, or of water containing milk or with white of egg beaten up in it. The strict milk diet is excellent for use for several weeks after any poisoning, especially mercurial.

There are some special antidotes for various specific poisons; but the above treatment will serve in an emergency. It is especially serviceable when one does not know the nature of the poison. Hot-air baths or electric-light baths, as well as the hot-blanket pack, may be substituted for the hot tub bath if the latter is not convenient or possible. Any heating application or procedure should be followed by a quick cold ablution.

Opium and other poisons not swallowed should have similar constitutional treatment, including the hot enemas or irrigation, but not the emetics, as vomiting will not be necessary. Of course, if the opium has been swallowed an emetic is necessary. If the patient is conscious there should be copious drinking of hot water. In narcotic poisoning keep the patient awake, by walking up and down and with coffee. If unconscious, there may be either alternate hot and cold applications to the spine, hot fomentations to the heart and heat to the feet, or, if convenient, the hot immersion bath with vigorous rubbing. In some cases artificial respiration, combined with external heat and rubbing, will be necessary.

PROSTRATION, HEAT.—See *Heat Exhaustion*, also *Sun-stroke*.

**Ptomaine
Poisoning**

PTOMAINÉ POISONING.—A ptomaine is a substance resembling an alkaloid in properties, formed during the decomposition or putrefaction of animal or vegetable matter. It is sometimes called, also, *cadaveric alkaloid*. The word *ptomaine* comes from a Greek word (*ptoma*) meaning a

corpse. It is the ptomaines that cause the poisoning by food that has "gone bad." They are irritant narcotic poisons—those producing local irritation and narcosis. Those produced in various foods are somewhat different in chemical nature, but on the whole their effects upon the body are more or less identical. Spoiled meats, fish, cheese, vegetables and canned goods—in fact, all foods containing protein—may give rise to ptomaines as a result of decomposition. There are more than sixty different ptomaines, each having a special name, which we need not consider. But aside from the ptomaines other deadly poisons, known as *toxins*, may develop in food. Botulism, for instance, is poisoning by botulin, a toxin formed in imperfectly canned meats and vegetables (sausage and other meats, fish, beans, spinach, ripe olives and some other foods).

Ptomaines in Food

In ptomaine poisoning (and botulism also) there are colicky pains, nausea and vomiting, diarrhea, severe prostration or collapse and subnormal temperature. The vomiting and diarrhea indicate Nature's violent effort to cleanse the gastrointestinal tract of the extreme irritant. This process should be assisted. Hence an *emetic* (a glass of warm water with a teaspoonful of mustard, salt or powdered alum) should be given immediately and repeated until the stomach is thoroughly emptied. Lavage (See *Water and Health*, Vol. VI, Sec. 2) is satisfactory when the special apparatus is at hand, but emesis is better because more promptly eliminative. In order to assist in cleansing the intestinal tract, castor oil, Epsom salts, or other rapidly acting *cathartic* should be given also, and repeated in case it is vomited. Full warm or hot enemas may be used and repeated if preferred to cathartics. After the digestive tract, especially the stomach, has been emptied, the patient should drink large quantities of water, the more the better. Hot water is better than water at any other temperature, except that warm water is better as an emetic.

The above treatment should be continued until the skin changes from cold to warm and moist, for perspiration will aid in restoring normal. External heat may be required. This may be given by means of hot-blanket pack, hot immersion bath or other suitable means, such as blankets with hot-water bottles about the body. A cardiac tonic of cold

compresses over the heart may be given for twenty minutes every hour if the heart action is greatly depressed. Often a neutral bath (95 to 98 degrees) will have a favorable eliminative and sedative effect. If collapse seems imminent a warm bath may be given after securing action from emetics and enemas, the bath to continue for twenty to thirty minutes with moderate friction and copious water drinking. If necessary the baths may alternate after this with fairly hot enemas. See also *Poisons*, and *Ptomaine Poisoning*, in Volume VIII.

RESPIRATION, ARTIFICIAL.—See *Artificial Respiration*.

Holding a
Patient

RESTRAINT OF PATIENT.—Sometimes in delirious cases, convulsions, delirium tremens, acute mania and refractory drunken people it is necessary to restrain the patient. If one person presses down on the patient's forehead (in bed), a second person strides the hips facing the patient and holds the patient's arms close beside the patient with thumbs turned out, and a third person lies across the patient's knees there will be little difficulty in holding him firmly. For securing the patient a sheet may be rolled so as to make a "rope" and wrapped about the legs and trunk, the ankles being securely looped in the sheet ("hog tied") and secured to the foot of the bed, then another sheet rolled similarly, placed back of the neck, then up over the shoulders and over the arms to the armpits, then on back to be secured to the head of the bed.

RIBS, FRACTURE.—See under *Fractures*.

RUPTURE, STRANGULATED.—See *Hernia, Strangulated*.

SCALDS.—See *Burns and Scalds*.

SCALP INJURIES.—See *Wounds*, also *Skull Fracture*, under *Fractures*.

Shock

SHOCK.—Often the victim of an accident, which may or may not be severe, suffers a shock which to the nervous system may be much more serious in itself than the injuries to flesh and bone, or there may be shock with no direct physical injury, such shocks, in fact, occasionally proving extremely serious or even fatal. Doubtless many accident victims have died of the shock instead of the physical injury to which death was attributed. Shock also is called collapse, though collapse may be different from genuine shock, coming on gradually at times as a result of some debilitating disease.

The appearance of the patient in shock is similar to that

of brain concussion. The symptoms are similar to but an exaggeration of those of faintness or syncope. The patient feels faint, the face becomes pale, the skin cold, the pulse feeble, the breathing slow and shallow. Sometimes the breath comes only in gasps, or breathing may seem to cease altogether. Severe burns and crushing accidents are particularly likely to cause shock. Since shock diminishes the circulation a slight degree of it is of advantage in case of injury where bleeding results. While surgical operations may and often do give rise to serious shock, they sometimes relieve it, as in the case of strangulated hernia, by removing its cause.

Any injury should receive prompt attention and bleeding should be stopped as soon as possible, assuring the patient, if he is still conscious, that the injury is not serious. Those attending, though sympathetic, should not allow themselves to express their grief or their anxiety through their behavior. In no way should the patient be alarmed or excited. He should be made as comfortable as possible, lying on the back for more perfect relaxation. All tight clothing should be removed and heat should be applied externally.

**Treatment
of Shock**

In many accidents it is much better that the injured be kept lying down, warmly covered, until an ambulance comes, instead of being carried or placed in a car for transportation to the doctor, though the latter course may be necessary at times. The more severe the shock the more quiet and warmth required. When possible, fomentations or other heat may be applied over abdomen and heart, with additional warmth to the feet. If the patient is able to drink hot water or, perhaps, hot weak lemonade, moderate stimulation will be secured by either of these. In case of prolonged shock, where there are no contraindicating injuries, a warm or neutral (92 to 95 degrees) immersion bath for one or two hours may be beneficial. In mild cases smelling-salts may be passed before the nostrils, also in more severe shock after the patient begins to "come to." An enema will be helpful in many cases, especially if containing a teaspoonful of common salt. Whiskey, black coffee, beef tea and similar stimulants are generally not necessary, but after the symptoms have been appreciably relieved, fruit juice, a clear vegetable broth or warm milk may be given. (See also *Burns and Scalds*.)

SHOULDER, DISLOCATION OF.—See *Dislocations*.

SKULL, FRACTURE OF.—See under *Fractures*.

Sleep
Produced
by Poisons

SLEEP PRODUCED BY POISONS.—In poisoning by opium or any of its derivatives, or by any other narcotic, it is important that the patient be kept awake, or at least breathing. This may be done by dashing cold water in his face or applying cold cloths, by slapping with a cold wet towel, and by shouting at him frequently. A few drops of alcohol or ether may be dropped occasionally on his bare chest with good effect. So long as the respirations are ten or more a minute the patient is safe. Artificial respiration will be required if the breathing falls as low as eight or six a minute.

SLINGS.—See under *Bandaging*.

SLIPPED CARTILAGE.—See *Knee-cartilage Dislocation*.

SMOTHERING.—See *Asphyxia*, as the terms are usually synonymous.

SMOTHERING BY PRESSURE.—Sometimes men are caught in earth cave-ins, or under running coal or wheat in bins or grain elevators, and are “smothered.” Except that any injuries, such as fractures, especially rib fractures, should be carefully attended to, the treatment after rescue is the same as in asphyxia. (See also *Strangulation*.)

SNAKE BITES.—See *Wounds*.

SPANISH WINDLASS.—See *Tourniquet*, under *Hemorrhage*.

Spasms

SPASMS IN CHILDREN.—These may result from worms, teething, indigestion, foreign bodies in some of the orifices, fright, constipation, fever and some of the “children’s diseases.” Restlessness is usually noticed first, with irritability and fretting, often grinding of the teeth, then twitching of the muscles, with stiffening of the body, with throwing back of the head, and rolling upward of the eyes. The pulse becomes weak and rapid, the skin clammy and cold and the breathing labored. Get the doctor if possible. If the child can be put in a warm tub bath for several minutes the spasms will usually quiet down. A tablespoonful of mustard added to the water may hasten the sedative action. Upon removal the child should be well wrapped in warm blankets after a thorough rubbing, or the rubbing may be administered through the blankets. Often it is better, before the immersion bath, to induce vomiting by tickling the throat and to empty the bowel

by means of a fairly hot enema. The vomiting, enema and bath may be repeated if necessary. (See also *Convulsions*.)

SPINE, FRACTURE OF.—See under *Back, Broken*.

SPIRAL BANDAGE.—See under *Bandaging*.

SPLINTS.—See under *Fractures*.

SPLINTERS.—Often a splinter of wood is forced under the nail and broken off. If even a small portion of it protrudes, it may be grasped with tweezers, forceps or pliers and gradually extracted. If it is broken too short to grasp, a small wedge of nail just above it may be cut away, after which it may be removed with tweezers, pincers or a knife-blade. If the splinter is elsewhere and is not easily extracted without cutting the flesh, it is usually better to have a doctor remove it. However, if the patient has “nerve,” the splinter may be extracted by first cutting down to it with a sterile knife-blade or razor-blade (held in boiling water for a few moments then cooled), then prying the object slightly with the point of the knife-blade or a sterile needle-point until it can be grasped. If let alone the splinter will be forced out as the area undergoes the process of “festering,” but it is not advisable to wait for this.

Splinters

SPRAINS AND STRAINS.—A sprain is an injury to a joint, possibly involving rupture of some of the ligaments or tendons, but without dislocation or fracture. A strain is an over-stress of some part by overuse or improper use, either by sudden extreme effort or protracted effort beyond the strength of the part. The term *strain* is usually applied to muscle or ligamentous injury; *sprain* to joint injuries. Both may be painful, and sometimes, when important ligaments are torn, a sprain will require a longer time to mend than will broken bones. Perfect rest of the injured part is absolutely essential to quick (and perhaps perfect) recovery. No strain should be placed upon it until it is thoroughly mended, which means that all use of it must be discontinued until that time. Passive exercise in the form of massage may be given to neighboring parts, but the sprained tissues must be let alone.

Sprains and Strains

Since swelling and the development of excruciating pain are rapid, it often happens that clothing, especially shoes, must be cut away instead of being removed in the ordinary manner, if further damage is to be avoided. As soon as possi-

ble the injured joint should be immersed in or sponged with water as hot as can be borne, the temperature to be raised as the skin tolerance increases and maintained at the point of tolerance. This considerable heat will not only relieve the pain, but will aid the process of mending. Occasionally cold water will give greater comfort, in which case it may be used for fifteen minutes at a time every one or two hours. Often it is better, instead of immersing the part, to sponge it, passing the saturated sponge lightly over the part and squeezing out the water with the hands, letting it flow over the affected joint.

Usually where cold is agreeable, alternate heat and cold will produce still better results. However, if the sprain has been neglected and the parts have become much inflamed and swollen, cold sponging will usually be beneficial, when used for an hour at a time several times a day until the acute inflammation has subsided. Linen bandages soaked in cool or cold water and not protected with flannel (the cooling compress) should be used during the intervals between applications of cold.

Treatment
of Sprains

The injured part will be greatly relieved of throbbing pain and will swell less if it is placed as high as possible above the level of the body, or fairly high. This is one reason why sponging, either with the hot or cold water, is often better than immersing, as some degree of elevation is possible during the sponging, while it is almost impossible in immersion of any joint. The wrist and the ankle may be elevated somewhat for immersion by having the extremity raised and allowing the hand or the foot to extend over the edge of the basin or the tub.

Another suitable means of application is wrapping a part in soaked towels. The joint should always be placed in the most comfortable position, which will be a partially bent one. Strapping an extremity with adhesive tape gives excellent support, and, in case of mild sprain, may be done almost immediately. In more severe cases, however, it should be done only after the inflammation has subsided to a marked degree.

In the case of an old ankle sprain that is stubborn to yield to the usual measures, an excellent treatment is walking

in cold flowing water, as is recommended for the flowing foot-bath, except that the water should cover the ankle. During this treatment one should rise on the toes at the end of every step, also bear the weight on the affected foot lightly but increasingly from day to day as the ankle is turned outward and inward. This treatment should continue each time until foot and ankle are reddened from the cold and reaction. It may be repeated two or three times a day.

Strains should be treated with the water applications and rest recommended for sprains, though usually they are not so severe as sprains and will respond satisfactorily to mere wrappings with cold wet cloths. In case of lingering pain, however, the hot water or the alternate hot and cold water treatment should be given. Taping may be employed if the part gives trouble more than a few days. The use of a leather wristlet may be employed for the wrist, this being buckled fairly snugly; or a tight-fitting elastic wristlet may be used. Elastic bandages may be procured for any joint likely to be sprained or strained.

Treatment
for Strains

STABS.—See *Puncture Wounds*, under *Wounds*.

STERILIZATION.—See *Antiseptics*; also *Disinfection*, in *Nursing*, Sec. 3 of this volume.

STIMULANTS.—Many people think that every person who has been the victim of injury associated with bleeding wounds or some degree of nervous shock needs stimulants. Whiskey was formerly given promiscuously when no other first-aid procedure was even thought of. It is still given at times, though other stimulants also are used. There may be an occasional case in which some degree of stimulation will be slightly beneficial, especially in such conditions as suffocation, drowning or smothering, but usually no stimulation aside from friction, external heat, and hot drinks will be required. In almost any case it is better that the doctor decide as to stimulants, especially as to alcohol.

Stimulants

Stimulants may be extremely dangerous in some cases, while in others they confuse symptoms and conditions so the medical attendant cannot determine readily the exact nature of the condition or the extent of damage to the patient, hence the indicated treatment. However, it might be said that hot water, lemonade, milk or broth may be given safely, if there

are no severe injuries or wounds of throat or abdomen, or other abdominal conditions requiring surgery. Poisoning sometimes calls for moderate stimulation. (See *Poisoning*.)

**Treatment
for Stings**

STINGS AND INSECT BITES.—When they sting, bees, wasps, hornets and yellow-jackets inject poison which causes considerable pain and swelling but will not be dangerous unless the stings are numerous, or unless they are about the nose, mouth or throat, where they may cause such great swelling as to interfere with breathing. If the sting can be seen (bees often leave their stings, the others retain theirs) it should be extracted, the poison sucked out and the part immersed in hot water. Cracked ice or very cold wet clothes (which may be wet in salt water) will help in case of great swelling.

Mosquitoes, fleas, flies and bedbugs irritate more than they harm, but if they are contaminated they may cause serious trouble. Touching wounds with alcohol, or household ammonia, or applying a salt water compress, will give relief.

Large venomous spiders, tarantulas, scorpions, and centipedes rarely cause death, though they do cause much swelling and pain and severe general symptoms, such as nausea, faintness, tremors and weak heart-action. Their bites or stings should be treated the same as snake bites, using the tourniquet, sucking the wound and loosening the tourniquet slowly. The wound may be painted with iodine. In urgent cases it may be incised.

Insect Bites

Such insects as ticks, jiggers, and gad-flies cause considerable trouble at times by depositing their eggs beneath the skin. These cause severe itching, perhaps infection. As these eggs, or the mites themselves, can often be seen under the skin, they may be extracted with a sterile knife-point or a needle. The wounds should then be dressed with a salt solution. Frequent renewal of dressing or bathing of the wound with the solution will relieve the itching.

STRAINS.—See *Sprains and Strains*.

STRANGULATION.—See also *Choking and Neck, Broken*. Any constriction should be removed immediately. If the strangulation is by hanging (from attempted suicide), the body should be supported so that it will not be injured when lowered after cutting it down. Death often is practically immediate in many cases, resulting from the neck having been

broken or dislocated. Often, however, there has been insufficient drop to cause death at once, the person slowly strangling if not relieved. After cutting the person down artificial respiration should be given, together with friction, external heat and other restorative measures.

STRAPPING.—See *Adhesive Plaster*.

SUFFOCATION.—See *Asphyxia*.

SUNBURN.—See under *Burns and Scalds*.

SUNSTROKE.—This also is called *heat apoplexy*, *insolation* and *siriasis*. It is a form of heatstroke due to overexposure to the sun's rays, probably caused by both the actinic rays and the high temperature. An "all gone" feeling in the abdomen is a frequent initial symptom, this being followed by nausea, dizziness, general weakness and faintness. Usually there is fever. At the onset of these symptoms the patient should be removed to the shade. The head should be somewhat raised, all clothing removed if possible and the cold water poured over the entire body, beginning at the head and going to the feet. The treatment will be more effective if the water is poured from a height of three or four feet. It should be continued until the symptoms disappear, or at least until consciousness has fully returned. (In case the sunstroke has fully developed, with hot dry skin, bloodshot eyes, rapid and weak pulse, shallow breathing, contracted pupils and high temperature (105 to 110 degrees), continue the cold pouring until consciousness returns.) If the patient can be put into a tub of cold water quicker results may be secured, especially if there is some ice in the water and an ice-cap or cold compress to the head. Ice-water or very cold water injections into the bowel will usually give results, even if the above measures fail. If none of these measures is possible, the patient's clothes may be sprinkled and then fanned, or the patient may be stripped and wrapped in a sheet, which should be wet and then fanned. Gradually dispense with the cold body treatments as consciousness clears, but continue the cold head applications until the patient approaches normal. See *Heat Exhaustion* and *Thermic Fever*.

Sunstroke

Prevention of Sunstroke (also heat exhaustion and thermic fever) is a matter of close attention to hygiene, food and digestion, cleanliness, elimination and other conditions of life.

Normal skin activity is necessary, hence adequate bathing is essential. Clothing should be loose, light and thin, that air may circulate about the skin and promote evaporation. The diet should be light and easily digested, with an abundance of fruits, fruit juices and green vegetables, moderate amounts of butter and whole-wheat bread, plenty of ordinary cold water (never iced) and no meats or rich foods. All alcoholic drinks must be religiously avoided, for the greatest number of heat prostrations and the most severe cases have been among those who have used alcohol. There must be adequate bowel elimination, which means two or three evacuations daily.

Fatigue, worry and other enervating influences must be avoided. Often it is best to avoid the direct rays of the sun in the heat of the day. But when exposed necessarily to considerable heat, whether in the sun, as in the hay-field, or in the shade, as in factories, foundries and engine-rooms (also the kitchens of Pullman cars, where many severe cases of heat prostration have occurred), the hair may be wet frequently with cold water, or leaves or light cloths, wet frequently with cold water, may be worn inside the hat or cap.

Prevention
of Sunstroke

If one is exposed to the sunlight while engaged in strenuous activity, the hat, cap or helmet may be lined with orange-red to prevent the actinic rays of sunlight from reaching the head. Shirts or other underwear may also be of this color, or material of this color may be worn merely along the spine. There should be thorough ventilation of living, sleeping and resting rooms; but the sunlight should be excluded by shades when it is intensely hot and there is susceptibility to its influence. Electric fans may be used during the day to keep the air in motion and thus facilitate evaporation of perspiration; but they should not be used during sleeping hours. Daily cool or cold baths should be taken regularly, preferably to terminate cleansing baths, if these are made necessary by the nature of one's work. Midday rest in the shade should be secured during intensely hot weather, and there may be fairly free drinking of only slightly sweetened or unsweetened lemonade.

SUSPENDED ANIMATION.—See *Animation, Suspended*.

TAILED BANDAGES.—See under *Bandaging*.

TEMPERATURE ABNORMALITIES.—Normal human tempera-

ture is 98.6 degrees F. As a rule it may be said that in case the temperature is above normal (fever) cold general applications are beneficial; while if the temperature is subnormal hot general applications will be helpful. However, unless other symptoms or conditions call for such applications, it is usually necessary to employ them in only slight deviations from normal, especially on the fever side. That is, with temperatures of 100 to 101 degrees, and often up to 102 or even somewhat above, treatment that tends to restore normality quickly need not be given, in the absence of other symptoms calling for it. But if the temperature is more than a degree below normal, in injuries or emergency conditions, it is usually advisable to apply either external heat or surface friction, or both, not primarily for raising the temperature, but to correct the condition causing it to decline. The more pronounced the associated symptoms, the more should restorative measures be considered. Numerous conditions may cause subnormal temperature. Those most likely to call for first-aid treatment are alcoholic coma, collapse, hemorrhage, poisoning, shock and uremic attack, as well as freezing or exposure to extreme cold.

TENDOSYNOVITIS.—This usually is called *tenosynovitis*. It is an inflammation of a tendon or the tendon sheath, the result of traumatism (injury) or of unaccustomed exercise, such as husking corn, lifting weights, shoveling snow or pitching hay. It may also result from slight but repeated contusions, such as those to which the hand is exposed in numerous sports and trades. Aside from the usual symptoms of inflammation (pain, tenderness on pressure and swelling) usually a crunching is felt, by fingers placed over the part, when the patient moves the part. However, this tends to disappear as the swelling becomes pronounced. There may or may not be suppuration. Treatment consists of rest, elevation of the part and cold compresses. Hot fomentation may be more comforting and equally beneficial, and sometimes alternate hot and cold compresses are desirable. Copious drinking of plain water is also beneficial. A splint that includes the forearm and extends to the ends of the fingers should be used, with daily manipulations of the muscles and joints associated with the affected region as soon as danger of infection or of spreading infection has passed.

Tendosyn-
ovitis

TENT FOR CROUP.—See *Croup*, and under *Burns and Scalds*.

THERMIC FEVER.—This is a form of heat prostration in which there is an excessive rise in temperature, sometimes to 115 degrees or higher. Unless proper treatment is instituted promptly, death will occur in practically all cases, preceded by intensely difficult breathing, asphyxia and coma. Warning symptoms, in the form of nausea, "heat-cramps," increasing weakness, dizziness, blurred vision, intense headache, and cessation of perspiration, are usually sufficiently marked, however, to cause the patient to seek complete rest in a cooler spot, and thus probably prevent more serious developments. Fresh air and moderate drinking of ordinary cold water will help further.

Thermic
Fever

In case the more serious symptoms develop, the cold bath is the proper treatment to give immediately. But if the immersion cannot be given, the patient should be stripped and given a cold pour or, if possible, stripped and wrapped in a sheet then given the cold pour and afterward fanned to maintain coolness of the sheet and skin. Starting with ordinary tap water, ice water, if procurable, may be used after a few minutes for a short time if the less extreme temperature fails to produce results. Constant general friction should be given during either of these cold applications. The pouring of streams of iced or cold water from heights of three or four feet upon the forehead for one or two minutes at a time, repeated several times with rests of a few minutes between pourings, is a powerful stimulant and may arouse the patient when all other measures have failed. When the temperature drops as low as 104 the patient should be wrapped in blankets with hot-water bottles about him. This will prevent dropping of the temperature to subnormal, with the development of collapse. As a secondary rise of temperature is usual, preparations should be made to repeat the cold bathing when necessary. An ice-cap should be kept to the head from the time the temperature reaches normal until the patient is ready to discontinue all treatment. Artificial respiration should be instituted in case of respiratory paralysis and continued for long periods if necessary. (See also *Heat Exhaustion* and *Sunstroke*.)

THIGH, FRACTURE OF.—See under *Fractures*.

THROAT, FOREIGN BODY IN.—See *Choking*.

TOOTHACHE.—A dentist, when his services are available, should determine the cause of a toothache. But it sometimes happens that a person will be out of touch with one and cannot reach him for several days, in which case something must be done to relieve the suffering. Many men swear by tobacco for this purpose, and there is no doubt that a small quid pressed into a tooth cavity will relieve the distress. This has more effect on one who is not an habitual user of tobacco than on those habituated to it, but in the case of the former the cure is sometimes only slightly less uncomfortable than the disease. If available, oil of cloves saturating a tuft of cotton pressed into the cavity is a better and more agreeable remedy. A fig heated in boiling or very hot water until it is as hot as the mouth membranes can endure, split and put over the offending tooth is a good means of securing relief. A hot-water bottle or other heat applied externally will often prove effective. If the tooth feels too long each time the opposing teeth strike it there is an abscess which, if possible, should be treated by a dentist without delay.

Relieving
Toothache

TOURNIQUETS.—See under *Hemorrhage*.

TRANSPORTATION OF PATIENT.—See *Carrying a Patient*.

TRIANGLE BANDAGES.—See *Bandaging*.

UNCONSCIOUSNESS.—Unconsciousness is an alarming symptom which ranks next to hemorrhage in its effect upon observers. If something is known of the preceding conditions the diagnosis is not difficult. Unconsciousness in a woman coming on during excitement points to fainting; unconsciousness in one working or strenuously exercising in the sun points to sunstroke; in one who has been the victim of a fall, brain concussion or skull fracture; in one with a history of kidney disease, uremia; or with a history of diabetes, a diabetic coma; or with a history of heart disease, "heart attack"; in an elderly person after a meal or after exertion or excitement, apoplexy. (See *Alcoholism; Animation, Suspended; Apoplexy; Asphyxia; Brain, Compression of; Brain, Concussion of; Catalepsy; Coma; Convulsions; Drowning; Electric Shock, under Burns and Scalds; Epilepsy; Fainting; Freezing; Heat Exhaustion; Hemorrhage; Hysteria; Neck, Broken; Paralysis; Poisoning; Skull Fractures, under Frac-*

Uncon-
sciousness

tures; Sleep Produced by Poisons; Strangulation; and Sunstroke. (See also *Drunkenness* in Sec. 7.)

But one may not have time to look through all these references in case of unconsciousness in another to whom one must give First Aid. However, it should be remembered that if one attempts to do much for the patient there is the possibility that some measure of harm will result through using a treatment not indicated. Hence if one cannot determine something of the nature of the cause of the unconsciousness, it will often be better to await the arrival of the doctor, who should be called immediately upon finding a person in an unconscious condition.

Symptoms of
Uncon-
sciousness

A test for unconsciousness is found in raising the eyelid and touching the white of the eyeball. If the patient is unconscious, no movement will be noted, whereas if he is conscious but shamming, or in an hysterical spell, he will be unable to avoid blinking.

If the eyes are sensitive to touch and light, there is no brain injury. If the pupils are unequally dilated there is brain trouble. If the pupils are equally contracted to pin-points, there is poisoning by opium or one of its derivatives.

One should note the color of an unconscious person's face, whether pale, flushed, or purplish. Note the odor of the breath, for such poisons as alcohol, chloroform and opium may be readily detected. If there is blood on the lips or mouth corners, it may be due to skull fracture or to the bitten tongue in an epileptic seizure.

Place the patient on his back and turn his head to one side so the tongue will not fall back into the throat to embarrass breathing and so any vomited matter may not enter the trachea. If the face is flushed the head may be slightly raised, but if it is pale the head should be laid flat. If the face is bloated and flushed, excessive alcoholic indulgence is indicated. If it is drawn to one side, apoplexy or brain compression is indicated.

Very slow breathing indicates weakness or shock. Snoring or stertorous breathing indicates coma, collapse, narcotic poisoning or brain trouble. A slow pulse denotes coma or brain trouble. Rapid pulse indicates sunstroke or fever. If the pulse is quick and thready, there is shock, collapse or great weakness (prostration). If the skin is hot and dry, there is

sunstroke or high fever. If the skin is cold, there may be freezing, fainting or intoxication collapse.

The treatment, naturally, will depend somewhat upon the causing condition, but some general rules will apply in most cases, such as those regarding restoration of breathing and warmth of the body. All that can be accomplished by drug stimulation in cases of unconsciousness or suspended animation can be brought about by natural measures in a manner equally effective and without the dangerous reaction or depression which follows the former. The most energetic vital stimulants are to be found in hot applications over the heart and in alternate hot and cold applications to the spine. Congestion of any part should be overcome as quickly as possible without too vigorous measures and the general circulation should be aroused to a more normal degree except, usually, in brain injuries (including apoplexy) and hemorrhage.

Treatment
for Uncon-
sciousness

When the hands and the feet are cold, hot applications should be made to these parts, in addition to any general circulatory stimulation, and should be combined with active rubbing of the limbs. Dashing cold water over the face and the chest, particularly the latter, helps to excite the respiratory function and to restore breathing, but should not be used in the two conditions mentioned just above. If the face is flushed and hot, cold compresses or affusions to the head may usually be used safely. If the face is pale, hot applications over the heart, also alternate hot and cold applications to the spine, may be used. High fever calls for cold water sprinkled or poured over the body, or over sheets wrapped about the body. Friction to the body, with heat to the extremities, is of considerable value in the majority of cases. In all cases, before anything else is done for the patient, loosen all constricting clothing about throat, chest and waist.

UREMIA, CONVULSIONS OF.—See *Convulsions*, *Unconsciousness*; also *Uremia* in Vol. VIII.

URINE, RETENTION OF.—Call the doctor. While awaiting his arrival place the patient in a hot sitz-bath, which may be improvised by filling a laundry tub with as much hot water as it will hold with the patient sitting in it. Have the patient sit in this with his feet in a basin of hot water outside. Additional hot water may be added from time to time as necessary.

The patient may empty the bladder while in the bath. If he is bedfast, or if for any other reason the sitz-bath cannot be used, a hot rectal injection may be used, often with good results. Hot compresses may be applied over the bladder area.

VOMITING.—This symptom may be due to one of several causes, such as indigestion, nervousness, irritant food, sick headache, pregnancy, cancer of the stomach, ulcer of stomach or duodenum, strictures or obstructions in the food tube, dilatation of the stomach, poisoning, drugs, kidney disease, brain disease, acute appendicitis, seasickness, car-sickness, the onset of acute disease, and so on. Usually it is best not to attempt to check the vomiting, though if the stomach is empty and the patient exhausted or weak, or if there is a condition in which the strain of vomiting is dangerous, the passive measure of keeping all fluids out of the stomach may help hold it in check. Ordinarily the vomiting will cease when the stomach is cleared of the irritant, whatever it may be. Any case that continues after the stomach should have been emptied should be in the care of a physician.

When Vomiting Ends

Sometimes the trouble may be brought to an end quickly by encouraging vomiting (see *Emetics*). This should be done in all cases of vomiting due to indigestion and poisoning (see *Poisoning*). When the patient has frequent and exhausting vomiting and knows from previous examinations that there is nothing contraindicative, the vomiting may safely be allayed by rest and fasting, by fomentations or a mustard poultice over the stomach, by sucking small pieces of ice or sipping iced lemonade, or by lavage, or perhaps by warm or fairly hot enemas or rectal irrigations.

WASPS, STINGS OF.—See *Stings and Insect Bites*.

WHISKEY AS STIMULANT.—See *Alcohol* and *Stimulants*.

WOUNDS.—In order to understand the action of the blood in case of wounds it will be well for the reader to study the circulatory system and the blood in Volume I. In the study of anatomy and physiology one finds that the blood contains countless corpuscles, both red and white; that in case of injury the latter throng to the seat of trouble and attempt to overwhelm any germs or sources of infection, for they are the body's defenders; and that pus consists of innumerable dead

or crippled white blood cells, germs and the débris of the fight. One also finds that when the blood is exposed to the air, or comes in contact with injured tissues, it changes its form, producing clots, or coagulums. Doctors speak of clotting as coagulation, which means curdling. In the formation of a clot there is gradual shrinkage, with separation of a clear yellowish fluid, called the serum. If there is a pronounced deficiency of calcium salts in the blood, coagulation takes place slowly or not at all. Inherited lack of these salts (and perhaps some other conditions not fully understood) accounts for the condition known as hemophilia, or bleeder's disease, the victims of which usually bleed profusely from what should be insignificant wounds. It is the function of clotting to stop bleeding by gluing and plugging up the openings made in the blood-vessels by injury.

Wounds are *classified*: *Contusions* or contused wounds, which are bruises, or injuries to the soft parts without breaking of the skin; *abrasions* or loss of skin by scraping; *incised wounds*, clean cuts made with sharp instruments; *lacerated wounds* (lacerations), which are tears of the tissues; *puncture wounds*, made by narrow pointed instruments (often called stab wounds). There are also *gunshot wounds*, made with bullets (or other missiles) projected from firearms; *penetrating wounds*, extending into the abdomen or other cavities of the body; and *infected* and *poisoned* wounds, which may be any kind of wounds which become infected or poisoned. Infected wounds are usually clean wounds at first. Poisoned wounds are wounds made at the time poison enters the body, as during bites of animals, humans, snakes and insects. See *Contusions*; *Abdomen, Wounds of*; *Abrasions*; *Compound Fractures*, under *Fractures*; *Hemorrhage*; and *Stings and Insect Bites*.

Healing of Wounds. Surgeons classify healing of wounds: *by first intention*, immediate union or healing of the surfaces without suppuration or formation of granulations; *by second intention*, union by granulation of the two surfaces, accompanied by more or less suppuration; *by third intention*, when the wound cavity or ulcer is filled with granulations and perhaps considerable suppuration, with later scar-formation upon complete healing. Sometimes healing under a scab is

Methods of
Healing of
Wounds

classed as a special variety; it may take place by first or by second intention. But in all cases, whether by first, second or third intention, the method of healing is fundamentally the same. Some degree of inflammation is excited, which aids in the formation of new material which fills up the wound. The chief new material is a form of connective tissue known as scar-tissue. New blood-vessels penetrate this new tissue, forming from the severed blood-vessels. Eventually circulation is restored. Collateral circulation supplies a great deal of the circulation of a part in more severe wounds and when considerable scar tissue is formed. The surface of the wound is covered with epithelium which grows from the cells of the severed skin. The inflammation is a natural process, incited by the injury, but infection will increase the inflammation beyond the normal reparative degree, producing suppuration and interfering with healing.

Wound Fever

"*Wound Fever*" does not always develop even in large wounds; in fact it will be present only in slight degree if at all unless there is some degree of infection. The main forms of wound fever are: *tension fever*, due to collection in a wound of blood or other fluid which cannot escape, the treatment being the simple provision of drainage, which, however, must be done by a physician. *Sapremia*, a form of blood-poisoning due to the presence of poisonous products (toxins) developed in the putrefaction of a wound (some wounds). *Septicemia*, a form of blood-poisoning due to microorganisms and their toxins and the toxins of putrefactive tissue in the blood. *Pyemia*, the presence of pus in the blood, there being developed foci of suppuration, shown by multiple abscesses, phlebitis and similar conditions. Radical eliminative measures are necessary in these cases, including the withholding of all food, copious water-drinking, large and frequent enemas and the cleansing of the wound. A doctor should be called immediately upon the appearance of any suggestion of infection in a wound, but eliminative treatment should be instituted at once.

Treatment of Wounds

Treatment of Wounds. Wounds of all kinds causing loss of blood should have prompt attention, otherwise there may be serious results, even loss of life. Minor wounds should be allowed to bleed moderately, the blood serving as an excellent cleansing agent and providing antisepticizing elements. But

if the bleeding is more than slight the hemorrhage should be arrested by the methods given under *Hemorrhage*.

If symptoms of faintness or shock develop the patient should be laid on his back with the head low, heat should be applied externally, and if convenient, a hot drink given. However, do not give alcohol, and preferably avoid coffee and other stimulants. (See *Shock*.)

Apply a clean dressing to the wound and secure it with a suitable bandage. Boracic lint is the best dressing, but if not available use any clean white material. Colored material should not be used when the skin is broken.

A few suggestions relative to various kinds of wounds will be appropriate. In the case of *incised wounds*, the skin being broken smoothly, it is well, after the bleeding has stopped and a semi-permanent dressing is to be applied, to bring the wound edges together so union will take place readily and a small scar result. Adhesive straps may be used to hold these edges together, at the same time holding in place the gauze or lint dressing. A "cocoon" dressing may be used on smaller wounds: cover the wound with a small pledget of gauze or cotton and cover this with a single layer of gauze large enough to extend half an inch beyond all sides of the wound, then paint this edge and the adjacent skin with liquid collodion, which secures the dressing to the skin, yet allows some air to reach the wound. No final dressing should be given these wounds until it is determined that no blood-vessels, nerves or tendons have been severed. Severe bleeding will require either pressure, cold applications or the tourniquet. If a nerve is cut, paralysis of motion or sensation will be below the injury. If a tendon is severed, its muscle will be rendered powerless. A doctor is required for all these conditions.

Treatment
of Incised
Wounds

In *lacerated wounds* care should be taken to remove any foreign body that may be in the wound, by washing with a warm antiseptic, such as boric-acid solution, or using sterile forceps, tweezers or pliers to remove the object. A sterile dressing should be applied after the wound is clean, this dressing to be kept wet by additions of the hot antiseptic solution. If the wound is of the scalp and a flap of scalp hangs loose, this should be washed and placed in position, then a head bandage applied. Where parts are crushed or mangled, as in

Treatment
of Lacerated
Wounds

railroad and machinery accidents, elevation may not be sufficient to stop the hemorrhage, so the use of a tourniquet may be necessary.

The clothing should be cut away around the wound, then treatment given for the shock that will usually have been sustained (see *Shock*, page 3052), the parts washed with a mild antiseptic solution, covered with some clean oil or vaseline, the several parts replaced as well as they can be, then secured, along with the neighboring joints, to a split. Parts partially severed should be adjusted to position after cleansing, for with the physician's help they may be saved. If shock has developed the patient should be treated where he is, or after removal to a safe and comfortable place, until he has recovered. No effort should be made to undress or to attempt to bathe the patient.

Treatment
of Punctured
Wounds

In case of *punctured wounds*, including *stab wounds*, it is important that, when possible, the object causing the wound be inspected to determine if part of it has remained in the wound, as frequently happens in case of splinter and needle wounds (see *Splinters*). In this case the object is likely to work in farther, or to migrate through the tissues. If the foreign body is such as to require surgical assistance antiseptic precautions are advisable pending skilled treatment. Many small punctured wounds are of little importance. After removing the foreign body assist the wound to bleed for a while, then touch it with tincture of iodine, mercurochrome, or alcohol, or bathe in a boracic-acid solution and dress or not according to its nature, severity and location.

If these simple wounds have evidently been contaminated, as by a rusty nail, an unclean sliver of wood or a stable fork, a doctor should give expert care; but if he cannot be secured, the wound should be treated with a strong germicidal antiseptic, applied on a cotton swab made by twisting a tuft of cotton around the end of a toothpick or similar small object that is not smooth, after which a wet alcohol dressing should be applied. In applying strong carbolic acid solutions all excess of the acid should first be pressed out from the swab employed against the neck of the bottle, and it should not be used unless alcohol is available for use immediately afterward.

In punctured wounds of the chest the wound should be

cleansed with an antiseptic solution, then covered with a fairly thick pad of gauze and the chest strapped with overlapping layers of adhesive tape extending around the injured side from the center of the back to the center of the chest. The patient most likely will lie on his injured side, but the head and shoulders should be slightly raised. In punctured wounds involving the heart there is grave danger of immediate death, though some patients survive the injury. If the knife or other instrument is still in the wound, *leave it there*, as it may be serving the purpose of a plug, preventing fatal or grave hemorrhage. Elevate the head and shoulders and see that the patient is comfortable, then await the doctor. (For wounds of the abdomen, the reader is referred to *Abdomen, Wounds of*.)

Heart
Wound

Gunshot wounds may be due to shotgun, rifle, pistol (revolver), or shrapnel. As the missile enters the body it is likely to carry with it foreign bodies, in the form of pieces of clothing or dirt, causing infection. The injuries produced within the body are the chief danger in these wounds, though often the missiles penetrate to considerable depth, or even perforate the body, without causing destruction of any vital structure. This accounts for the fact that the initial hemorrhage is rarely of any importance. The wound of exit should be looked for. If found it will be seen to be much greater in extent than the entrance wound, and an ugly laceration. Wounds caused by blank cartridges are burned contusions, deep within which is the wad from the cartridge.

In treating gunshot wounds never probe for the missiles. Merely swab the entrance and exit wounds with an antiseptic solution, such as iodine tincture, and apply sterile dressing. Lockjaw sometimes results from these wounds. All cases should be cared for by a physician or a surgeon. The tendency of doctors, however, is to give anti-tetanus serum for all gunshot wounds, as well as for all other wounds with any likelihood of becoming infected. If one maintains a clean blood-stream by good elimination, eats moderately and correctly and drinks copiously of plain water, and as soon as practicable exposes wounds to sunlight or artificial sunlight, it is not likely that there usually will be any serious consequences from them.

Treating
Gunshot
Wounds

**Poisoned
Wounds**

Poisoned wounds, as meant here, are those produced by the bites of animals, humans or snakes. Insect bites are considered under *Stings and Insect Bites*.

Dog-Bites

Dog-bites occasionally result in hydrophobia, but this condition is rare. Many dogs are killed because they have bitten humans without any proof that they have rabies (or lyssa). However, there is the possibility of the dog having the disease and transmitting it to any human or animal bitten by it. If the claws are contaminated from the animal's saliva, scratches may produce the disease, as may the tongue, if it comes in contact with a break in the skin. If the bite or the scratch is received through clothing, infection is less likely than if direct, because the clothing wipes off most of the virus. It is doubtful if any case called hydrophobia in man that develops "months or years" after exposure is actual rabies due to the previous bite or scratch. Wrong living, or worry and imagination of the symptoms, may lead to the development of a condition wrongly diagnosed as rabies.

The wound should be treated like any other penetrating or lacerated wound, which is by cleansing with antiseptic solution and sterile dressing. Lemon juice is said to be an excellent antidote, hence may be used if there is any suspicion of rabies, or as a safe precautionary measure in any case. The wound may be swabbed with tincture of iodine if desired, and before this the patient himself, or someone else, may suck fairly vigorously on the wound, spitting out all blood extracted and then rinsing the mouth well with boracic-acid solution or lemon juice. A tourniquet may be used on an extremity, placed between the wound and the heart. Vigorous eliminative treatment, together with proper care of the wound, will practically always prevent further trouble.

Those who are inclined to worry about the possibility of the gravest trouble and who still cling to a fairly firm belief in the efficacy of strange or powerful drugs or medicaments may consider the use of anti-rabies serum if they wish. But in our opinion it should be avoided. Some patients, however, who have been treated by this method have died, while others bitten by the same animals but not treated have continued to live.

Snake-bites are not so invariably serious as a great many

Snake-Bites

people believe. But there are several varieties of snakes whose bites are poisonous, and if neglected are likely to cause serious symptoms or prove fatal—sometimes, also, in spite of care. The bite of the Texas reptile called the *gila monster* is classed by some as fatally poisonous, yet by others is said not to be. While it may not be fatally poisonous, its bite is certainly as serious as that of the venomous snakes. The bite of a poisonous snake shows the imprint of the teeth, outside of which appear fang punctures. The fang punctures are absent in bites from non-venomous snakes—but such snakes rarely bite, instinctively knowing that their defense does not lie in such a weapon as their teeth. The amount of poison injected and the kind of snake govern to a great extent the symptoms; but some patients have all the symptoms and yet recover.

Use of the Tourniquet

A tourniquet should be applied immediately between the wound and the body (the hand or lower extremity being the part usually bitten). Any strap or stout cord, or a handkerchief, may be used for the purpose. If the person bitten is alone the tourniquet may be tightened with a stick, which can then be tied with another hand (see *Spanish Windlass Tourniquet* under *Hemorrhage*). As with a dog-bite, the patient should suck the wound if possible, expectorating the blood, though if there is an open wound in the mouth this treatment should be avoided. The bite should be incised (lanced) or cut out entirely before the sucking. The more bleeding the better, though the tourniquet will prevent free bleeding. The wound may be saturated with a mild solution of acetic acid, or equal parts of white vinegar and water (lemon juice will do); or it may be cauterized with the point of a white-hot iron; or gunpowder grains may be rubbed into it. The use of the white-hot iron is not so dreadful as might be imagined, for it is done instantly and may not hurt as much as an ordinary pinch. After the above local treatment the tourniquet may be loosened momentarily and again tightened, loosened again after a few moments and this releasing and tightening repeated. If the patient shows no symptoms of absorption, such as nausea, dizziness or faintness, the ligature may be loosened for gradually increasing periods until it can be removed entirely.

As soon as possible after these steps have been taken

rapidly eliminative measures should be adopted. Alcohol is not the specific it was formerly considered, so should not be used, for it sometimes does much more harm than good. Hot water may be drunk copiously and hot enemata repeated several times. Fresh air and deep breathing are essential, and it is especially important that skin activity should be greatly accelerated by means of the full hot bath, hot-blanket pack, wet-sheet pack, or similar measures. If the patient becomes drowsy and the heart-action is appreciably decreased, fomentations over the heart may be employed. If heart-failure seems likely the roots of the nerves governing the heart's action may be stimulated by fomentations to the spine.

Human Bites *Human bites* sometimes result seriously. There is no specific treatment for these wounds. They should be thoroughly cleansed, as should any other wounds, then a suitable dressing applied. A dressing wet with baking-soda solution is excellent. (See also *Antiseptics*.)

Good Health an Aid in Injury **FINAL WORD.**—Health is one of the best safeguards against accidents and their consequences when incurred. A physically fit person possesses an alertness of mind and strength of muscle which often enables him to remove himself promptly from sources of danger; also, if he meet with an accident the processes of repair are so rapid that no great inconvenience may result from an injury that might otherwise prove serious. Nevertheless, it is wise for everyone to keep out of danger. Some people may, in fact, tempt Fate in about every possible manner. Many escape injury, maiming, sickness and death, sometimes miraculously, perhaps many times. This may so embolden them that they still more flagrantly disregard all rules of common sense and all laws of Nature and physics.

No matter how nimble of foot, arm or body, how alert of mind, how superbly healthy one may be, one may easily make a false step, or repeat some unwise action once too often. Like the driver who secured the stage driving job over a mountainous route in preference to others who boasted their ability to drive dangerously close to the edge of a precipice, you may be able to drive close to danger, but at the same time you should have sense enough to stay as far away from it as possible. Your vitality may be at low ebb at the time you take your

unnecessary risk, so even though you may not be sent on your final long journey with speed and dispatch, you may not "pull through" so easily as you thought possible. Even with the greatest of precaution and the best of health, accidents and disease may come upon one. Therefore, while avoiding worry, always be careful. It pays in the long run. The expression "It is better to be safe than sorry" has underlying it a great deal of wisdom.

Caution vs.
Injury

DIETARY AND VITALITY-BUILDING ROUTINES

Section 6

F*ASTING Routine No. 1.* This consists of abstaining entirely from food in all forms, solid and liquid, and from water as well. It may be called the total fast, so may be employed only in exceptional cases. Its duration usually is for only two or three days, but it may extend from one to four days, rarely if ever longer. This fast is of benefit in some cases of dropsy, especially in general dropsy when the tissues are burdened with large quantities of fluid due partly to the inability of the body to eliminate fluids. The majority of such cases will do better on the following fasting routine. Another purpose for which this fast sometimes is used is to bring about a natural thirst, though it is used little in this regard. In fact, its use is limited, as it may not be required once in a thousand fasts.

Neither Food
nor Water

Fasting Routine No. 2. This is the usual complete fast. It consists in abstinence from all liquid and solid food, with nothing permitted but water according to desire. Usually there is no particular thirst for the first two to four days of this fast. Water has a "bad taste," so one will drink little if left to actual desire. But in this fast three or four glasses of plain water should be taken daily for these first few days, then at least five, preferably six or more glasses on each of the following days of the fast. This fast may be for only two or three days, or it may be a "finish fast"—continued until natural hunger returns; but it may be continued any number of days from one to forty or even more, often being continued for thirty days. The nature of the abnormal condition for which the fast is taken, the vitality, energy, weight and general condition of the patient govern its duration. When this fast is taken for only a few days (from two or three to seven to ten days) it may be repeated, perhaps several times, with sufficient intervals between to permit recovery of strength and energy and, usually, weight between fasts.

Fast with
Water

Fasting Routine No. 3. This is the same as No. 2 except that large quantities of water are drunk daily—from one to two glasses each hour of each day.

Fasting Routine No. 4. In this fast considerable quantities of water are taken daily, but not plain water: A quart of hot water containing the juice of one lemon and $\frac{1}{2}$ teaspoonful (sometimes less) of salt is taken two or three times daily, preferably at each of the three regular meal times, or at least morning and evening. The water is taken as hot as it can be drunk without sipping and each quart is to be taken within ten minutes if possible, preferably never more than 15 minutes. In addition to these quarts of water-lemon-salt mixture, plain hot or cold water may be drunk as desired between them. This is an excellent fast for use in cases of pronounced intestinal putrefaction, catarrh of the intestines, liver congestion and gallstones or gall-bladder affections. However, either No. 2 or No. 3 may be used with practically as good results in many cases of these disorders.

Fasting Routine No. 5. This is a series of short fasts which increase regularly in duration: the patient fasts one meal, eats two meals; fasts for one day, eats on two days; fasts for two days, eats on four days; fasts for three days, eats on six days; fasts for four days, eats on eight days; fasts for five days, eats on fifteen days. Continue increasing the duration of succeeding fasts one day and making the eating periods three times the duration of the fasts, until the abnormal condition is corrected. Or after the fasts and eating periods have reached five days and fifteen days, respectively, these periods may be retained in the future.

Alternate
Fasting

This latter plan is preferable to the longer fasts when weight and energy are recovered slowly and the weight always tends to remain below normal. In this routine, regardless of the length of the fast, care must be taken not to overeat between fasts.

An excellent plan of insuring against overeating is to adopt the milk diet (No. 1) between fasts, provided the condition for which the fasts are taken is one in which the milk diet will be of benefit. Another good plan is to use a fruit and milk diet, employing acid fruits, other juicy fruits and sweet fruits with liberal quantities of milk, but in uniform

quantities from day to day. Fruit and Milk Diet No. 2 would be excellent to use on this plan. Still another satisfactory plan is to have the meals arranged as to quantity, and only this food set out for consumption. When this plan is followed, if the quantity is such as to provide suitable nourishment without providing an oversupply, and if added quantities are not taken at the meals or between meals, there should be no trouble in regard to overeating.

Fasting on
Oranges

Fasting Routine No. 6. In this plan oranges (or sometimes grapefruit or grape juice) are taken for two to four or five days, then the complete fast, as in No. 2, until the strength seems considerably reduced and indications seem to call for the addition of some nourishment. This may be within four or five days, or perhaps for ten to twenty. When this condition develops, oranges (or the other fruit) again may be taken.

After another few days when the energy may have returned appreciably, a water fast again may be taken for several days. The alternation of the "fruit fast" and the "water fast" may be repeated several times. A "perfect cure" of extreme rheumatism was effected by continuing these alternate water and fruit fasts for fifty-six days: three, four, three, three, four and two days devoted to oranges, and six, eight, seven, eight and eight days devoted to water fasts.

Routine of
Fast Break-
ing

FAST-BREAKING ROUTINES.—The chief purpose of the fast is to give the body an opportunity to eliminate waste materials and toxins resulting, in the main, from wrong foods, wrong eating and living habits, and to give the digestive system and, in fact, the entire body a physiological rest. Whatever the purpose of the fast, the condition of the digestive apparatus becomes such during the fast that it cannot take as large quantities of food as it could take immediately before the fast, unless it was totally unable to take food. As with muscles that have been unused for some time, so the digestive organs when unused, as in a fast, are unable to begin immediately with the amount of work they formerly were able to handle, unless the fast be for only a meal or two, or at most two or three days.

One of the urgent requirements after a fast of several to many days' duration, especially after a protracted fast, is the

adoption of a diet that will insure proper nutrition without endangering the digestive organs with overwork and without endangering the body as a whole with unwholesome foods. If the fast has been of real benefit, that is, if it has continued sufficiently long to be of special value, there develops a keen appetite before the fast is broken or immediately after taking the first food.

Unless one guards against overeating, greedy eating, or too frequent eating (which is one form of overeating) the tendency is to follow a fast with injurious amounts of food, thus undoing the good gained by the fast, and, perhaps, bringing on troubles directly concerned with the digestive organs that did not exist before. This should not dissuade one from taking the fast when this health-restoring measure is needed. But it *should* cause one to be cautious against harmful foods or harmful quantities of food. If the return to normal capacity and amount is accomplished slowly, the good produced by the fast will be retained and even much further good gained. Note that word *normal*. It does not mean the previous usual amount of food, unless this was no more than the body actually required.

Diet and
Normal
Feeding

In this section appear various diets that may be employed after the fast. The foods selected for these diets are procurable almost universally, and they are practically universally agreeable. However, if for any reason any article of food cannot be obtained or if it seems to give rise to unpleasant symptoms, one may use substitutes, which may be selected according to the information given in Volume II.

One must guard against using certain foods that may substitute for other foods under certain other conditions. Thus meats, fish and fowl sometimes may substitute for milk (or eggs or cheese or nuts). If a fast-breaking routine calls for milk, certainly one would not take meat or other flesh food if the milk did not agree; nor would one take syrups or molasses for sweet fruits; and so on.

Often one may blame a food for trouble when it is the manner in which it is used, or the quantity in which it is taken. Before discarding any advised or suggested food for a substitute, one should be reasonably sure that it actually does cause trouble and that further attempts to use it, with pre-

cautionary modifications, will not bring about correction of the trouble. The milk diet is the most universally applicable and agreeable of all diets for use following fasts.

Fast-Breaking Routine No. 1. For use following a fast of one to five days. First Day: Three meals of juicy fruit (citrous or other juicy fruit, such as apple or peach), at least five hours apart. *Second Day:* One eight-ounce glass of whole sweet milk every hour for twelve hours, with the juice of one orange half an hour before the first glass if desired. *Third and Following Days:* One glass of milk every three-quarters of an hour to every half-hour (according to the size of the individual and his digestive capacity) for twelve hours daily, with an orange within thirty minutes of the first glass. Large individuals, especially tall individuals, usually can take the six quarts daily that this half-hour feeding allows, without difficulty; but individuals no taller than sixty-five inches usually will find that five and one-half quarts daily will be ample for all desires and capacities, which may be secured by the forty-five-minute schedule for approximately thirteen hours ($12\frac{3}{4}$ hours) daily. Women of the same height as men as a rule require from one pint to one quart less a day.

Fast-Breaking Routine No. 1A. This is an alternate method, likewise for breaking a fast of two to five days. It is to be used by those who, for some definite and well-established reason, cannot take the milk diet. *For the First Two or Three Days:* Take three meals at least five hours apart, each consisting of one citrous or juicy fruit and one sweet fruit and one glass of whole milk. *After Two or Three Days:* Take one pint to one quart of moderately hot milk in the morning and again at the usual evening meal hour, and in the middle of the day take a moderate-size meal of a salad, cooked vegetables, sour milk and a fruit dessert. After a day or two add a slice of whole wheat toast and, if desired, an egg or a small piece of cheese to this meal. *After One or Two Weeks:* Gradually add other foods and the other meals of solid foods until the usual three-meal diet is obtained. But adhere to moderate quantities and natural foods as much as possible. After a fast less food is needed than before, because digestion and assimilation have been improved and the taste-buds of the tongue are more easily satiated.

Fruit in
Fast Break-
ing

Milk in Fast
Breaking

Fast-Breaking Routine No. 2. For use following a fast of six to ten days. First Day: Three or four meals of the juice of any preferred citrous or juicy fruit or berry (unsweetened), each meal to be the equivalent of the juice of one orange in quantity. *Second Day:* The same as on the first day except that double the quantity of fruit juice may be taken at each meal, and the pulp of the fruit may be taken. *Third Day:* One eight-ounce glass of milk (preferably at body heat) every two hours, taken slowly, but not necessarily over four or five minutes to each glass. *Fourth Day:* One glass of milk every hour for twelve hours. *Fifth and Following Days:* For twelve hours daily one glass of milk every thirty or forty-five minutes, according to needs, capacity and size of the individual. Whatever quantity is chosen for the daily allowance should be taken regularly each day. That is, not a glass every thirty minutes one day or one-half day and a glass every forty-five minutes the next day or the second half of the day, etc.

Fruit and
Milk in
Fast
Breaking

Fast-Breaking Routine No. 2A. This is to be used instead of No. 2 when the milk diet is not to be taken. It also is to follow fasts of six to ten days' duration. *First Day* and *Second Day* are the same as in No. 2. *Following Three Days:* Take increasing quantities of juicy fruits and milk; or juicy or citrus fruits, sweet fruit and milk, starting with small amounts of each of these foods at each of the three meals. *Following Days:* If desired, gradually add nuts, cheese, whole grain cereals, salads and cooked green and root vegetables, giving due regard to proper quantities and combinations.

Fast-Breaking Routine No. 3. To use after a fast of eleven to twenty days. First Day: Four meals of diluted fruit juice (orange or grapefruit) in four- to six-ounce doses. (After fasts of eleven to fifteen days it usually is not necessary to dilute the juice.) *Second Day:* Four meals of undiluted fruit juice, in six- or eight-ounce feedings. *Third Day:* Take six to eight ounces of fruit juice for the first meal. An hour later take eight ounces of warm milk, and a similar amount each two hours for the remainder of the day. *Fourth and Following Days:* Increase the frequency of feedings and work up to the full milk diet as in No. 2.

Fast-Breaking Routine No. 3A. This is to follow fasts of eleven to twenty days when the milk diet, as in No. 3, cannot be taken. *First and Second Days:* As in No. 3. *Third Day:* One fresh fruit and two-thirds of a glass (or less) of milk for each of three meals. *Fourth Day:* Three meals each of fruit and one glass of milk. *Fifth Day:* A morning meal of fruit and milk. Milk as desired from three hours after this meal until 3 o'clock—not over one quart; a vegetable meal at 6 o'clock. *Sixth Day:* *Morning,* Fruit first, followed by one or two glasses of warm milk; *noon,* a raw and cooked green vegetable meal, with toasted whole wheat bread and, if desired, a poached or coddled egg or two; *evening,* a meal similar to the noon meal except that no eggs are to be taken; buttermilk or a vegetable soup to be taken if desired. The noon and evening meals may be reversed if preferred. *After the Next Two or Three Days* a regular diet of wholesome foods may be returned to, the amounts gradually increasing from below requirements to proper full quantity.

Fast-Breaking Routine No. 4 and 4A. (No. 4 is for the milk diet, No. 4A is for the alternate diet.) *This is for fasts of longer duration than twenty days.* The same foods may be taken as in No. 3 and No. 3A, respectively, except that for the first three or four days the quantity at each feeding must be smaller and one day more must be taken in reaching full capacity of milk, or of other foods on the alternate diet. It is especially necessary that after fasts of fifteen days' duration and over, only small quantities of food at a time be permitted to enter the stomach. This necessitates slower sipping or taking milk through a straw, or even more thorough mastication of solid foods.

In the above diets the orange is the citrus fruit of preference; grape juice is the preferred "fresh" or "juicy fruit" juice and dates are the preferred sweet fruit. However, all other fruits in each class may be used by different individuals.

Fast-Breaking Routine No. 5. This is a gruel diet especially valuable in breaking fasts taken for the cure or relief of ulcer, cancer, or tuberculosis of the stomach or pronounced inflammatory conditions of this organ or of the intestines, including duodenal ulcers. In these affections the fast rarely can be continued sufficiently long completely to correct the

disease conditions. It will produce excellent results in the way of modifying the pathological condition; but a non-irritating, bland and easily digested gruel will be highly valuable to continue the improvement. This gruel may be taken following fasts of any duration, though the longer the fast the more diluted (the thinner) should be the gruel.

From four to six ounces of gruel may be taken at each of the permitted four, five or six feedings daily, the difference in amount of food served being governed by the consistency of the gruel. However, if three feedings a day for the first day or two satisfy or can be made sufficient there will be no need to take more.

For the first two or three days the gruel should be strained to remove the solid substance of the cereal; but after these first few days the solid substance may be left in and more of the cereal may be added in the making of the gruel so the amount of substance in the gruel will gradually increase. Oatmeal, brown rice or barley may be used for making the gruel, using a level teaspoonful of the cereal to one pint of water and adding a bare pinch of salt. It is better to boil this well or cook in a double boiler. After five days to a week of this diet the milk diet may be taken, as advised in Milk Diet No. 2, beginning as for the third or fourth day of this diet routine, depending upon the length of the fast and other conditions.

PARTIAL FASTING ROUTINES.—*Partial Fasting Routine No. 1.* One orange or one-half grapefruit (unsweetened), or four ounces of the juice of either or of the two combined, every two hours during the day (six or seven feedings). Drink water as desired.

Partial Fasts

Partial Fasting Routine No. 2. One-fourth pint (four ounces) of fresh fruit juice of grapes, apples, pineapple, orange or grapefruit, three or four times a day. This fruit juice should not be taken hurriedly, as some drink water, but should be sipped slowly, taking one or two minutes or even longer to drink each glass. Drink water as desired.

Partial Fasting Routine No. 3. Four ounces of unsweetened blackberry or loganberry juice three or four times a day. The juice is to be fresh. Take water as desired.

Partial Fasting Routine No. 4. Three meals a day, each meal consisting of four to six ounces of acid fruit. Any kind

of acid fruit, according to desire, may be taken, the most desirable being orange, grapefruit, grapes, apples, pears, peaches or any similar fruit. Any preferred berry may be taken similarly, but unsweetened. Water may be taken according to desire.

Partial Fasting Routine No. 5. Two meals a day of three to six ounces of acid fruit and sweet fruit combined, half and half. For instance, dates (seeded) are cut up, and apples are cut up, and the two are mixed together. Almost any acid fruit and sweet fruit will combine satisfactorily in this manner, though banana should not be combined with grapefruit or pineapple or any other very acid fruit or berry. If one finds olive oil agreeable, it may be added to this combination of fruits. Water may be taken as desired.

Partial Fasting Routine No. 6. This consists of one glass of sweet milk taken morning and evening. Drink water as desired.

Milk and
Fruit in
Partial
Fasting

Partial Fasting Routine No. 7. This consists of one glass of skimmed milk taken morning, noon and night. Drink water as desired.

Partial Fasting Routine No. 8. This routine consists of one glass of sumik (whipped clabbered milk) morning, noon and night. Drink water as desired.

Partial Fasting Routine No. 9. This routine consists of one glass of buttermilk morning, noon and night. Drink water as desired.

Partial Fasting Routine No. 10. This consists of one slice of whole-wheat toast or zwieback taken twice a day, thoroughly masticated. Drink water as desired.

Partial Fasting Routine No. 11. The equivalent of one-half a medium-sized cantaloupe or any other melon, including watermelon, three or four times a day. Drink water as desired.

Partial Fasting Routine No. 12. Three or four feedings daily of six ounces of whey after the curd has separated. Drink water freely.

Partial Fasting Routine No. 13. Three or four feedings daily of six ounces of lemon-whey: Heat one pint of milk to the boiling point, add one tablespoonful of lemon-juice. Mix, strain.

Partial Fasting Routine No. 14. One pint of milk three times daily, morning, noon and night. This diet is not sufficient entirely to nourish the body, yet it is a splendid routine when one is suffering from a surplus accumulation of flesh, as it is necessary very materially to reduce the fatty tissue with a view of more quickly bringing about the curative processes in the treatment of any disease. This diet is often prescribed for those who desire to reduce in weight and who have not the strength of will to adopt the entire fasting process.

Partial Fasting Routine No. 15. One to two pints of very warm or hot milk three times daily, morning, noon and night. Note that this milk is to be hot. This does not mean, however, that the milk should be heated beyond a temperature that can be drunk freely without sipping. The object in heating it is to assist materially in its digestion, for the heat stimulates the action of the stomach.

LIMITED DIETS.—*Limited Diet No. 1. Breakfast:* Two ounces of raisins, one glass of milk; *Luncheon:* six dates and one glass of milk; *Dinner:* one ripe banana, and one glass of milk.

Limited Diets

Limited Diet No. 2. From one-half dozen to one dozen dates and from one to two glasses of milk three times a day, the dates and the milk to be taken together; that is, take a date in the mouth with a small quantity of milk and masticate them together.

Limited Diet No. 3. Two or three ounces of raisins and one glass of milk two or three times a day.

Limited Diet No. 4. Two ounces of any kind of sweet fruit desired, one ounce of nut-meats and two glasses of milk at each of three meals daily.

Limited Diet No. 5. Three meals daily of one ounce of flaked raw grains (choice), two ounces of sweet fruit and one glass of milk.

Limited Diet No. 6. One pint of soup selected from the recipes given, taken three times a day. If desired the soup may be varied in kind at the different meals.

Limited Diet No. 7. One-half pint of soup and one slice of hard bread or toast, three meals daily, varying the soups if desired.

Limited Diet No. 8. One-half pint (measured after cooking) of boiled brown rice prepared in accordance with the recipe given in Combination Soup Diet No. 3, to be taken three times a day. Flavor the rice with a small quantity of cream, rich milk or honey.

Limited Diet No. 9. Select any one of the limited diets of uncooked foods and each day increase the quantity of food taken from 10 to 25 per cent.; that is, from one-tenth to one-fourth of the amount. Increase daily in this manner until the appetite becomes less keen for each meal. At this time, or in case the slightest digestive disturbance develops, lessen the amount of food to the quantity used in the beginning, then increase gradually as before.

Limited Diet No. 10. This is the same as No. 9, except that the selections may be made from the cooked and uncooked foods as the appetite increases and dictates.

Limited Diets Nos. 11, 12, 13 and 14. See Limited Carbohydrate Diets 1, 2, 3 and 4, pp. 3095 and 3096.

MILK DIETS.—*Milk Diet No. 1. First Day:* Half pint milk hourly. *Second Day:* Half pint milk every three-quarters of an hour. *Third Day:* Half pint of milk every half hour. *Fourth Day and thereafter:* One to one and one-half glasses of milk in accordance with the desire, endeavoring gradually to increase the amount until the capacity of the patient is reached, but never over seven quarts daily, usually six quarts. Absolutely no other food is to be used in this milk diet, with the exception of lemon juice or other fruit juices such as may be necessary to counteract tendencies towards nausea or biliousness, and an orange or two daily.

Milk Diets
for Months

In ordinary cases this diet should be maintained six weeks at least, but where the patient suffers from extremely low vitality or great emaciation, it may often be continued advantageously for three or four months or even for years.

Milk Diet No. 2. One-half pint of milk every half hour during the first day; from one-half to three-quarters of a pint of milk every half hour the second day in the forenoon, and one-half pint every half hour in the afternoon. The same amount each day thereafter. Also one or two oranges daily.

Milk Diet No. 3. First Day: 8 ounces of milk every 2 hours. *Second Day:* 8 ounces of milk every 1½ hours. *Third*

Day: 8 ounces of milk every hour. *Fourth and Following Days:* 8 ounces of milk every three-quarters of an hour for twelve hours daily. Not more than 4 quarts daily. An orange daily.

Milk Diet No. 4. Same as No. 1, except that one orange is taken with each quart of milk (5 to 7 daily). *Variation:* Limit milk to 4 or 5 quarts, and add more oranges (up to 12).

Milk Diet No. 5. Same as No. 1, except that both sweet milk and sumik are used. *Procedure:* Sweet milk one day, sumik the next, and alternate; or sweet milk in the forenoon, sumik in the afternoon, or vice versa; or sweet milk one glass, sumik one glass, and alternate through the day. This last plan is less desirable than either of the other two. Orange daily.

Milk Diet No. 6. Any whole sour milk, taken as in Milk Diet No. 1, except that the maximum quantity is one pint to one quart less daily.

Milk Diet No. 7. Same as No. 6, except that two dates are taken per glass of sour milk (twenty-four dates a day).

Milk Diet No. 8. Same as No. 6, except that buttermilk is used.

Milk Diet No. 9. Same as No. 1, except that skimmed milk is used instead of sweet milk.

Milk Diet No. 10. First Day: eight ounces of milk every hour for twelve hours. *Second Day:* Two glasses of milk every 1½ hours. *Third Day:* Four glasses of milk (quite warm) three times a day, also one to two glasses of cool milk upon arising, again between each two quarts, and again on retiring. (Warm milk may be used at all of these times instead of cool milk, if preferred.) Five quarts daily. *Following Days* the same. An orange or two daily.

Milk Diet No. 11. One to two pints of milk, very warm, taken three times daily, also one or two glasses of cold milk taken in the morning on arising and between each two meals of milk referred to, and upon retiring at night. This is a fairly good substitute for the regulation milk diet wherein the milk is taken every half hour. If the milk can conveniently be secured warm at each of these periods the quantity may be increased beyond one and two glasses, morning and night and between meals. If the patient is a business man and desirous of trying the milk diet but cannot take it every half hour, as

**Milk Diet
for Business
Men**

suggested, he may follow this plan, taking more at each "meal," so he would not then be required to take the milk so frequently. However, this method is not by any means so satisfactory as the former. An orange should be taken daily.

Milk Diet No. 12. This consists of sumik taken one-half pint each hour during the day. Drink water as desired.

Milk Diet No. 13. This consists of sumik whenever craved during the day and in quantity desired. An orange daily.

MILK AND FRUIT DIETS.—*Milk and Fruit Diet No. 1.* This consists of three meals daily of one to two pints of very warm milk and with as much acid fruit as one desires to take at such meals. By acid fruit are meant apples, oranges, peaches, pears, strawberries, blackberries, etc. Any of these acid fruits may be taken with the milk at these meals. Take the milk at various times during the meal; that is, eat a small quantity of fruit and then take a glass of milk, alternating the meal in this manner.

Milk and Fruit Diet No. 2. This consists of three meals daily of acid and sweet fruits and milk. Confine the first meal, however, to the acid fruits and from one to two pints of milk; the second meal to sweet and acid fruits and a smaller quantity of milk, the third meal similar to the second. On this routine it is a good plan to mix the acid and the sweet fruits; otherwise, the sweet may pall upon the taste.

Milk and Fruit Diet No. 3. This consists of three meals daily of sumik and sweet fruit. Usually three or four glasses of sumik may be taken, and from $\frac{1}{4}$ to $\frac{1}{3}$ pound of any preferred sweet fruit. It is very appetizing to add a little of the sumik to the fruit in the mouth while masticating it.

Milk and Fruit Diet No. 4. This is the same as No. 3, except that buttermilk is used. Dates are the preferred sweet fruit on either of these diets.

FRUIT DIETS.—An acid fruit diet is to a certain extent of value as a means of replacing a fast where an abstemious routine is needed and one does not possess sufficient will power to fast entirely. This more especially refers to acid fruits alone, for, by combining sweet with acid fruits one can be completely nourished in every respect. Even the acid fruits alone contain about all the elements needed to nourish the body, so one could live on them for an indefinite period,

though of course he would not be as satisfactorily nourished as he would on a more nutritious diet.

For the convenience of those who may not fully understand what is meant by acid fruits, it may be said that the following are the principal fruits of this character: Apples, apricots, blackberries, cherries, grapes, grapefruit, lemons, limes, nectarines, oranges, peaches, pears, pineapples, strawberries and plums.

Acid fruits are distinguished by what may be termed a partially sour taste, though as a rule they do not possess enough of this characteristic to make the taste unpleasant. Lemons and limes, for instance, contain more of the acid characteristics than other fruits. Grapefruit and pineapple furnish a strong acid flavor, which as a rule is not unpleasant. Apples of the "sweet" class cannot be used as acid fruit, nor are such apples as a rule sufficiently sweet really to be classed as sweet fruit. They belong in the subacid fruit class.

Fruit Diets,
Acid and
Sweet

The sweet fruits in common use are classed as follows: Bananas, figs, persimmons, raisins, dates and sweet prunes. Though bananas are classed as a sweet fruit, they can hardly be referred to in the same class as dates, figs and raisins. They are more closely allied to bread than is any other fruit. In some countries they are as staple an article of food as bread is with us. Remember, however, that bananas shipped to northern markets are cut green and do not ripen normally.

Great care should be used in selecting properly ripened bananas. The skin of the banana that is in good condition to be eaten usually contains black spots of the shape and form, though not the color, of the freckles on the face of a boy. The banana is not too ripe even if the skin is entirely black, provided the meat inside is solid and free from all soft "spots."

Many people will no doubt find it difficult to secure fresh acid fruits. Under such circumstances unfermented fruit-juices such as apple and grape may be used. Dried fruits may also be used, though they are not quite as satisfactory, yet they will serve the purpose fairly well. For instance, dried apples or peaches may be used instead of fresh ones. Results almost as satisfactory will follow their use, especially when the fruits have been dried without the use of sulphur, which of course has a slightly detrimental influence.

3090 FRUIT DIETS: NO.1 TO NO.7

Fruit Diet No. 1. Morning: Grapefruit, steamed figs. *Noon:* Apple, dates. *Evening:* Pear, banana. Vary juicy fruits and sweet fruits from day to day.

Fruit Diet No. 2. Morning: Rice gruel, date purée, sweet-apple sauce. *Noon:* Carrot purée, banana purée, pear purée. *Evening:* Pea purée, peach purée, prune purée, and 6 ounces of half milk and half cream (or slightly less cream).

Fruit Menus

Fruit Diet No. 3. Three meals daily of acid fruits, not more than one kind of fruit to be eaten at one meal. On this routine one can satisfy the appetite on the particular kind of fruit selected for that meal.

Fruit Diet No. 4. Two meals daily of acid fruits, to be taken from 11 to 12:30 and from 5 to 7 o'clock. On this routine any two acid fruits may be used at each meal.

Fruit Diet No. 5. Three meals daily of one or two kinds of acid fruits as desired, chopped up and sweetened with honey, to the extent of one's desires.

Fruit Diet No. 6. Three meals daily of acid and sweet fruits. At each meal no more than one kind of acid fruit and one kind of sweet fruit should be taken, though the fruits may be changed at different meals: peaches and dates; oranges and bananas; apples and figs; plums and raisins; grapes and bananas; apples and dates; pears and bananas.

Sweet and Acid Fruits

When eating these meals it is a good plan to combine the acid with the sweet fruits, that is to chew them together, or mix them together about half and half, in order that one may get the flavors of both. These fruits are more palatable when eaten in this manner than when eaten separately, so one can usually enjoy more of them than if each were eaten separately. For instance, the sweet fruits such as dates, figs and raisins, are inclined to pall upon one, though when mixed with some acid fruit they will be far more appetizing and more may be eaten and digested.

Fruit Diet No. 7. Acid and sweet fruits chopped up fine, thoroughly mixed together and then cream or olive oil added; be careful not to add both cream and olive oil; either one or the other may be used. If one is not prejudiced against olive oil it will usually make a more satisfactory combination than the cream. Three meals daily, consisting solely of this combination, should be taken.

COMBINATION MILK DIETS.—In these the quantity of milk is not limited, but is taken every half hour, as advised in the ordinary milk diet. After having continued on one of these diets for several days, one may take the milk less frequently, but take more at each meal—though as the quantity is increased remember it is better to have the milk fairly hot. For instance, after one has become accustomed to the milk diet, he may frequently drink as much as a quart at one time.

**Combination
Milk Diets**

Combination Milk Diet No. 1. Eight ounces of milk every half hour (as in Milk Diet No. 1) till 1 P.M. Nothing after this time except all the water desired, until 6 or 7 P.M., when the following meal is taken: Raw and cooked vegetables, whole wheat bread, a little sweet fruit. Soup may be taken at the beginning of the meal if desired, or up to one glass of some form of sour milk may be taken at the close of the meal.

Combination Milk Diet No. 2. Take milk until 1 P.M., as prescribed in previous diet; that is, one-half pint every half hour. At six or seven o'clock take a meal consisting of soups and vegetables, and one or two ounces of nut meats, according to the taste, using the greatest care to masticate thoroughly and to avoid overeating.

Combination Milk Diet No. 3. Take milk as previously prescribed; that is, one-half pint every half hour, until 1 P.M. At six or seven o'clock take a meal consisting of twice as much one kind of acid fruit as of one kind of sweet fruit and not over three ounces of one kind of nut meats. Milk may be taken with this meal, if desired.

Combination Milk Diet No 4. Milk as prescribed previously, that is, one-half pint every half hour, until 1 P.M. Meal at six or seven consisting of two or three ounces of nut meats or a glass of some form of sour milk, also green salads, such as onions, lettuce, watercress and the like; no bread to be used.

Combination Milk Diet No. 5. Take sumik whenever desired and as much as craved, until 1 P.M. as previously directed; at six or seven o'clock take a meal consisting of soups and vegetables, according to taste, using the greatest care to masticate thoroughly and to avoid overeating.

**Sour Milk
Diets**

Combination Milk Diet No. 6. Eight ounces of sumik every half hour (as in Milk Diet No. 1) till 1 P.M. Nothing

3092 COMBINATION MILK DIETS

after this time except all the water desired, until 6 or 7 P. M., when the following meal is taken: Raw and cooked vegetables, whole wheat bread, a little sweet fruit. Soup may be taken at the beginning of the meal if desired.

Combination Milk Menus

Combination Milk Diet No. 7. Take sumik until 1 P.M., as prescribed in previous diet; that is, $\frac{1}{2}$ pint every half hour. At six or seven o'clock take a meal consisting of soups and vegetables, and one or two ounces of nut meats, according to the taste, using the greatest care to masticate thoroughly and to avoid overeating.

Combination Milk Diet No. 8. Take sumik as previously prescribed; that is, $\frac{1}{2}$ pint every half hour until 1 P.M. At six or seven o'clock take a meal consisting of twice as much of one kind of acid fruit as of one kind of sweet fruit and not over three ounces of one kind of nut meats. Sumik may be taken with this meal, if desired.

Combination Milk Diet No. 9. Sumik as prescribed previously; that is, $\frac{1}{2}$ pint every half hour, until 1 P.M. Meal at six or seven consisting of two or three ounces of nut meats, also green salads, such as onions, lettuce, watercress and the like; no bread to be used.

Combination Milk Diet No. 10. Take buttermilk whenever desired and as much as craved, until 1 P.M., as previously directed; at six or seven o'clock take a meal consisting of soups and vegetables, according to taste, using the greatest care to masticate thoroughly and to avoid overeating.

Combination Milk Diet No. 11. Between six and eight in the morning eat an ordinary meal of foods that previous experience has shown you will agree with you thoroughly, but without meat in any form. Beginning at 1 P.M. take milk as prescribed in the ordinary milk diet; that is, one-half pint every half hour, until 7 or 8 P.M.

Combination Milk Diet No. 12. Between six and eight o'clock in the morning take a meal consisting of soup and vegetables, according to the taste, using the greatest care to masticate thoroughly and to avoid overeating. Beginning at 1 P.M. take one-half pint milk every half hour, until 7 or 8 P.M.

Combination Milk Diet No. 13. Between six and eight o'clock take a meal consisting of one kind of acid fruit, one

kind of sweet fruit and one kind of nuts. Milk may be taken with this meal if desired. Beginning at 1 P.M. take one-half pint of milk every half hour, until 7 or 8 P.M.

Combination Milk Diet No. 14. Between 6 and 8 A.M. take a meal consisting of green salads, such as onions, lettuce, watercress and the like, and two or three ounces of nut meats or a glass of some form of sour milk. Beginning at 1 P.M. take milk as previously prescribed, until 7 or 8 P.M.

Combination Milk Diet No. 15. Between six and eight in the morning eat an ordinary meal of foods that previous experience has shown will agree with you, but without meat in any form. Beginning at 1 P.M. take sumik, as often as desired and in quantities to satisfy the appetite, until 7 or 8 P.M.

Combination
Milk Diets

Combination Milk Diet No. 16. Between six and eight in the morning eat a meal consisting of soup and vegetables, according to the taste, using the greatest care to masticate thoroughly and to avoid overeating. Beginning at 1 P.M. take sumik, as prescribed in Combination Milk Diet No. 15.

Combination Milk Diet No. 17. Between six and eight in the morning take a meal consisting of one kind of acid fruit, one kind of sweet fruit and one kind of nuts; milk may be taken with this meal if desired. Beginning at 1 P.M. take sumik, as prescribed in Combination Milk Diet No. 15.

Combination Milk Diet No. 18. Between six and eight o'clock in the morning take a meal consisting of green salads, such as onions, lettuce and watercress, and two or three ounces of nut meats or a glass of sour milk. Beginning at 1 P.M. take sumik, as prescribed in Combination Milk Diet No. 15.

Combination Milk Diet No. 19. A quart of milk to be taken hot upon arising (115 to 120 degrees); a meal of ordinary foods that you know from previous experience to be wholesome (without meat), of limited variety, to be taken some time between twelve and five o'clock; a quart of milk to be taken hot immediately before retiring at night.

Combination Milk Diet No. 20. A quart of sumik to be taken immediately upon arising; a meal of ordinary foods that you know from previous experience to be wholesome (but no meat), of limited variety, to be taken some time between twelve and five o'clock; a quart of sumik to be taken immediately before retiring.

**Reduced
Starch Diets**

LIMITED CARBOHYDRATE DIETS.—The value of the next four special diets is that one can know exactly from what foods to select when a certain starch-percentage diet is indicated. The amount of foods taken in these four diets is secondary; the important thing is that the starch percentages may be regulated along accurate lines. The diets are particularly helpful for diabetics, they are of value to the obese, and the first two especially may be taken with benefit by those who desire an alkalinizing diet or a strict vegetarian diet. With a little attention one can quickly learn these classifications and with a little care in their application can bring oneself into chemical balance.

One must bear in mind, however, that the addition of sugar to any of these foods will change their carbohydrate percentage accordingly. For this reason certain ones should be omitted from the diet of those who cannot take them unsweetened. This holds particularly true of rhubarb, which is not a good food anyway, and to a less extent it is true of cranberries, other tart berries and such acid fruits as the sour varieties of plums. If these foods are taken without sugar or other sweetening, they will fall in the classifications in which they are listed. Otherwise they will come in the classification given in Limited Carbohydrate Diet No. 4, or will be out of the Limited Carbohydrate class entirely.

Of course, many foods are not listed in these special diets. The value and effect of the diet as a whole will depend to a considerable extent upon how those other foods are combined with the special diets. But if one makes it a point to have the bulk of the diet consist of these limited carbohydrate foods, the dairy products, meat, nuts, etc., may be taken practically as desired, within reason, except in the case of obesity, when, of course, the fats must be restricted.

Probably there will not be a strong desire for much meat when the diet comprises mainly the foods in the first three groups below. Dairy products, especially milk in some form, always should form a prominent part of the diet, with cream, butter and eggs or egg-yolks in moderation and according to the condition of the patient.

Naturally, on some days and during some weeks one will eat more than at other times. Usually the less one desires the

more should one choose from the foods of lighter starch content (as in Limited Carbohydrate Diet No. 1 and perhaps No. 2) and the less one should eat of the concentrated foods, particularly meat and other proteins. When the appetite is keen, from honest labor or wholesome physical activity—from a natural hunger created by the body's actual need for food—then the more concentrated foods may be chosen in larger amounts, but always less in actual bulk than the lighter starch-content foods.

Limited Carbohydrate Diet No. 1: The 5 per cent. carbohydrate (starch or sugar) foods:

The 5 per cent. starchy foods include any carbohydrate food analyzing from zero to 5 per cent. carbohydrate (starch or sugar): Asparagus, Brussels sprouts, cabbage, cauliflower, celery, cucumber, eggplant, grapefruit, greens (beet-tops, dandelions, etc.), kale, lemons, lettuce, okra, peppers, pumpkin, radishes, rhubarb, sauer kraut, spinach, string beans, Swiss chard, tomatoes.

Diets Low in
Starch

Whole milk, skim milk and whey average about 5 per cent. carbohydrates, buttermilk about 4.8 per cent., cheeses about 2.3 per cent., and lean meats practically or absolutely no carbohydrates, hence may be used with the above foods and still keep the diet down to a 5 per cent. carbohydrate diet.

Limited Carbohydrate Diet No. 2. The 10 per cent. carbohydrate foods are more or less starchy foods that contain from 5 per cent. to 10 per cent. carbohydrate: Beets, blackberries, cantaloupes, carrots, cranberries, mushrooms, olives, onions, oranges, peaches, pineapples, squashes, strawberries, turnips, watermelons.

Practically no other foods have between 5 per cent. and 10 per cent. carbohydrates, hence to keep the diet below 10 per cent. starch the additional foods given above in Diet 1 may be used. However, Brazil nuts, bean soup, canned cream of corn soup, pea soup and the usual hash average somewhat over 5 per cent. and below 10 per cent. carbohydrates.

Limited Carbohydrate Diet No. 3. The 15 per cent. carbohydrate foods include starchy foods that contain from 10 per cent. to 15 per cent. carbohydrates: Apples, apricots, cherries, currants, grapes, blueberries, nectarines, parsnips, pears, peas, raspberries.

3096 UNCOOKED AND RAW DIETS

The additional foods given in Diet No. 1 above may be used with these foods. But usually when one is allowed 15 per cent. carbohydrate foods one may also use small amounts of more starchy foods. Too much will depend upon the abnormal condition, whether it be a disease, or simply overweight, to outline this diet further. It is well to adhere mainly to the 5, 10 and 15 per cent. carbohydrate foods when 15 per cent. carbohydrate foods are permitted, using of course the additional foods already mentioned.

Limited Carbohydrate Diet No. 4. The 20 per cent. carbohydrate foods. Within the 20 per cent. classification are artichokes, bananas, beans (baked), corn, figs, peas (green), plums, potatoes, prunes. The above additional foods are permissible. See also under Diet No. 3.

Diets Rich
in Starch

UNCOOKED OR RAW DIETS.—*Raw Diet No. 1. Breakfast:* Orange, four to six figs or equivalent of other sweet fruit, and six to eight pecans or the equal in other nuts. *Noon:* Any juicy fruit (not citrous), dates, three ounces of almonds or other nuts, large combination salad. *Evening:* $\frac{2}{3}$ cup of raw rolled oat flakes, two ounces of nut meats, the whole moistened with rich milk; a large green vegetable salad. Or omit the nuts and add one or two glasses of sour milk.

Raw Diet No. 2. Breakfast: $\frac{1}{2}$ grapefruit, two ounces of nut meats, and six ounces of grapes or raisins. *Noon:* Large raw vegetable salad, and from two to four glasses of sumik or other sour milk. *Evening:* Large vegetable salad containing also two or three ounces of chopped dates (or figs or raisins) and two ounces of nut meats. Or omit the nuts and take from two to four glasses of sour milk.

Raw Diet No. 3. Breakfast: Flaked grains (wheat or oats), sweet fruit and milk. *Noon:* Sweet and acid fruits (or sweet and juicy subacid fruits). *Evening:* Several (any) kinds of vegetables raw, with subacid or sweet fruit and either nuts (four ounces), cheese (four ounces), or buttermilk (one or two glasses).

Raw Diet No. 4. Breakfast: Fresh fruit and four ounces of nuts. *Noon:* Sweet and acid fruits as desired. *Evening:* Any kind or all kinds of raw vegetables that are in season, buttermilk or sumik (one or two glasses), and raw flaked grains.

FRUIT AND NUT DIETS.—*Fruit and Nut Diet No. 1.* *Breakfast:* Acid fruit and nuts (three ounces). (Fruits: citrous, grapes, apricots, plums, pineapple, berries.) *Noon:* Sweet and acid fruits as desired. *Evening:* Subacid fruits (apple, pear, peach, seedless grapes, blueberries, raspberries), and three ounces of nuts (chestnuts, or any of the heavier nuts except roasted peanuts).

Fruit and Nut Diet No. 2. *Breakfast:* Juicy fruit, sweet fruit, with or without a glass of milk. *Noon:* Acid fruit, sweet fruit, three ounces of nut meats. *Evening:* Acid or juicy fruit, two sweet fruits, three ounces of nut meats.

Fruit and Nut Diet No. 3. One kind of acid fruit and one kind of sweet fruit chopped up fine, mixed together, one to two ounces of nuts added for flavoring, then cream or olive oil added. The olive oil or cream may be used with the combination if desired, though be careful not to make it too rich. Almost any kind of nuts may be used in connection with this combination. Should the nuts be very rich and oily, such as the Brazil or the black walnut, a very small quantity must be used; in fact, under such circumstances olive oil or cream should not be added to the combination. Pignolias are perhaps the most satisfactory nuts for this particular diet, though cashew nuts, when they can be secured, are still better. This last named is more closely allied to bread than any other nut. It contains less oil and is more easily digested than other nuts. The following combinations of fruit and nut diets are suggested: raisins, oranges and Brazil nuts; dates, apricots and filberts; bananas, pears and pignolias; apples, dates and pecans; peaches, bananas and almonds; pears, figs and walnuts; oranges, dates and cashew nuts.

CEREAL COMBINATION DIETS.—One should remember that the uncooked foods contain more nourishment pound for pound than when cooked; therefore, not so much food is required when one is following an uncooked food routine. Many of the raw foods recommended are also highly concentrated, so the greatest care must be used when following an uncooked diet to avoid the evils that result from overeating.

Cereal Diet No. 1. Ordinary flaked or rolled oats, wheat, rye or barley moistened with cream, adding raisins to taste. Begin with a fourth to one-half pound of this mixture at each

meal, taking two meals a day. This allowance may be increased gradually, using the greatest care not to eat beyond the ability to digest. One may drink whatever quantity of milk is craved at each meal. A noon-day meal (if three meals are deemed necessary) may be taken. It may consist of a large raw vegetable salad and two or three glasses of sumik or buttermilk. The cereal in these diets is uncooked.

Cereal Diet No. 2. Two meals daily of the same combination as described in Diet No. 1; add one or two ounces of nuts in accordance with the desire.

Cereal Diet No. 3. Two meals daily of the same combination as described in Diet No. 1, though do not take milk. Add to the last meal a green salad of some kind, watercress, lettuce, spinach or the like, in accordance with the desire.

Green Salads SALAD DIETS.—Green salads of various kinds apparently furnish elements that occasionally seem to be especially needed to nourish the body perfectly. The organic salts considered so valuable by many dietetic experts are furnished abundantly by these salads. The most valuable among the various “green things” are cabbage, lettuce, watercress, onions and spinach. Lettuce, for instance, is a remarkable remedy in many instances where the nerves appear to be poorly nourished. Onions furnish a splendid food to cleanse the alimentary canal. Watercress is to a certain extent valuable in a similar way, no doubt largely because of its woody fiber as well as the cleansing and nourishing influence of its food properties. Spinach is recognized everywhere as a splendid blood purifier. It undoubtedly has some properties of this character, provided of course it can be properly digested and assimilated. It is unquestionably of more value when eaten raw than when cooked, though the food value is not greatly lessened by proper cooking. Cabbage is very rich in mineral elements and vitamins.

Salads may be eaten without dressing when they appear to be appetizing. Many persons enjoy them with nothing added. Sorrel combined with watercress, spinach or lettuce perfectly supplies the pleasing acid taste usually given to salads by lemon juice or vinegar. This is, of course, preferable to the ordinary dressing used on salads; however, when dressing is essential, lemon juice adds a pleasing piquancy to the flavor

of the salad. Salt may be added if desired, though as a rule this is not needed.

When one is accustomed to using an ordinary French dressing, made from vinegar, oil, salt, pepper and mustard, a satisfactory substitute may be made by combining one-third olive oil and two-thirds lemon juice and salt to taste. Or, one may pour lemon juice over the salad, and add whatever oil and salt may be necessary.

Salad Diet No. 1. Two meals daily of lettuce, tomatoes and turnips or carrots, mixed together and chopped fine; add dressing in accordance with desire, after which flavor with small quantity of grated cheese. One may make an entire meal of this combination, varying the ingredients in accordance with taste. For instance, if one is fairly hungry the amount of turnips or carrots may be increased with a view of giving proper bulk to the meal.

Salad Menus

Salad Diet No. 2. Two meals daily of watercress and whole wheat bread and butter, the watercress to be masticated with the bread and butter.

Salad Diet No. 3. Two meals daily of lettuce and tomatoes; flavor with a small quantity of onions chopped fine, adding lemon juice and olive oil if desired. It may be eaten with hard whole-wheat bread or crackers.

Salad Diet No. 4. Select any combination salad especially craved; add one to three ounces of nuts especially appetizing. Eat with whole-wheat bread and butter or hard crackers; two meals only.

Salad Diet No. 5. Two meals. *Breakfast:* A fruit salad—juicy and sweet fruits, with or without milk. *Evening:* A large green salad, with raw root vegetables, such as grated carrots, with or without sumik or buttermilk.

Salad Diet No. 6. *Breakfast:* Of fruit as desired, with or without sweet milk. *Noon:* A green salad with two ounces of nut meats or eight ounces of sour milk. *Evening:* A green salad with sweet fruit, and sour milk if desired.

ALKALINIZING DIETS.—*Alkalinizing Diet No. 1.* *Breakfast:* Tomato broth, grapefruit, lettuce, stewed figs. *Noon:* Vegetable broth, cooked greens, celery and lettuce, prunes, cottage cheese. (Cheese may be omitted.) *Evening:* Shredded carrots, lettuce, sliced cucumbers, grapes, pecans.

Alkalinizing Diets

Vary the citrous fruits, the sweet fruits, the uncooked salad vegetable, the vegetable broths, the cooked leafy vegetables and the nuts from meal to meal.

Alkalinizing Diet No. 2. Breakfast: Fresh fruit, as desired. *Noon:* Raw vegetables, with acid and subacid fruits as desired. *Evening:* Raw and cooked green vegetables and light starchy vegetables. (Fresh corn, carrots, beets, eggplant, summer squash, cauliflower and onions are the light starchy vegetables.) After seven to ten days add sweet fruit to this diet.

**Vegetable
Broth Diets**

BROTH DIETS.—*Vegetable Broth Diet No. 1.* Cook carefully washed spinach in the usual manner. Run through a sieve as for very thin purée, strain and take in cup feedings three times a day.

Vegetable Broth Diet No. 2. Stew tomatoes until tender. Run through a sieve, strain and serve in cup feedings three times a day.

Vegetable Broth Diet No. 3. Stew two or more green vegetables and carrots, run through a sieve, strain and serve in cup feedings three times daily.

Vegetable Broth Diet No. 4. Make a very thin purée from baked potatoes, using the white center as close to the skin as possible. Serve in cup feedings three times a day.

Vegetable Broth Diet No. 5. Take 3 ounces of sauer kraut juice three or four times a day.

Raw Vegetable Juice Diet No. 1. Run spinach, cabbage, carrots, and whatever additional green vegetables are available through a meat grinder, press, strain and serve in two- or three-ounce feedings three or four times daily.

CEREAL BROTH DIETS.—All of these are to be taken by teaspoonful, slowly and thoroughly insalivated.

**Cereal Broth
Diets**

Cereal Broth Diet No. 1. Heat two ounces of whole wheat flour in a pan until it has a walnut color. Then add a very small amount of butter. Form a paste with hot water, then continue adding hot water until the gruel has the consistency of cream soup. Cook for three to five minutes. Add a pinch of salt if desired. Take one teacupful three times a day.

Cereal Broth Diet No. 2. Stir oatmeal into boiling water until the mixture has the consistency of cream. Remove at once and strain. Take one teacupful three times a day.

Cereal Broth Diet No. 3. Wash one tablespoonful of brown rice. Add boiling water one pint and boil for thirty minutes. Cool and strain. Take one teacupful morning, noon, and night.

Cereal Broth Diet No. 4. Brown a tablespoonful of whole cornmeal in a pan. Add six ounces of boiling water and boil five minutes. Strain. Take one teacupful of such broth morning, noon and night.

Cereal Broth Diet No. 5. To two ounces of washed pearl barley add four pints of water; boil down to two pints. Add a dash of salt and, if desired, a teaspoonful of honey or brown sugar. Strain. Take one teacupful three times daily.

Cereal Broth Diet No. 6. Toast thoroughly one slice of bread (preferably whole wheat bread). Pour over it eight ounces of boiling water. Cover and let stand in a warm place twenty minutes. Take a teacupful of this toast water three times a day.

In any of these diets the feedings usually may increase to four, five or six a day if the appetite is keen; also after several days of the diet when somewhat more nourishment is desired before changing to another and more varied diet.

COOKED DIETS.—Various cooked diets are recommended because of their simplicity and their lack of variety, since, as a rule, one can secure far better results by avoiding elaborate dietetic combinations. The more nearly one confines his meal to one or two articles of food such as he especially craves, the more easily digestion and assimilation will be carried on and the more satisfactory the results will be.

Exercise care, when cooking food, to avoid the usual mistakes of cooking at too high a temperature and of continuing the cooking process far beyond the time required to bring out the flavor, which is the principal object desired in cooking. As a rule it is better to avoid cooking food to the consistency of mush, unless one is desirous of making a soup. Even under such circumstances, boiling should be avoided as much as possible.

Prolonged boiling not only destroys important elements of nourishment contained in the food, but at the same time materially affects the flavor. To a certain extent it mars the appetizing characteristics that the food may possess.

Preparing
Cooked Diets

Another thing: be sure to avoid pouring off valuable nourishing elements; for example, when potatoes are boiled the water should not be poured off, but just enough of it should be used to boil the potatoes. In other words, when the potatoes are done the water should all have boiled away, the potatoes retaining the nourishing or appetizing elements that may have been absorbed by the water in the boiling process. It may be well to add that boiling is not by any means the best method of cooking potatoes. Baking is perhaps the most wholesome of all methods of cooking them.

When the patient is unable to masticate food properly the soup diets herein mentioned will be found especially satisfactory. They will put the stomach in a condition which apparently will enable it to digest food easily, so though one may lose more or less because of the need of saliva in the mixture, at the same time the food will be reduced to minute particles and the digestive juices will be able easily to carry on their particular processes.

Soup Diet No. 1, Legume Soup. Two meals a day of moderately thick soup made from peas, beans or lentils. No bread or any other kind of food should be used in connection with this diet. This soup should be prepared by allowing the legumes (in the form of dried peas, beans or lentils) to soak over night in cold water; the next morning they should be allowed to boil for one minute, after which they should be put aside to soak for twenty-four hours. They should then be simmered for six to ten hours—not boiled, please note. If they are not sufficiently softened after this prolonged simmering process, they may be boiled for a few minutes. Previously to this last boiling process one should add a small quantity of onions, chopped very fine, butter or olive oil, and a little milk if desired, and salt to taste. When this soup has been prepared it may be kept in a refrigerator and heated as desired, though it should be made fresh every two or three days.

Soup Rich
in Protein

Soup Rich in
Carbohy-
drates

Soup Diet No. 2, Cereal Soup. This consists of soup made from any of the flaked or whole grains, wheat, oats, barley or rye, soaked for several hours or over night and then simmered several hours to the proper degree of softness. Butter or olive oil and chopped onions should be added to the

mixture a short time before the cooking process is completed. Wheat and rye will, of course, require considerably more cooking than barley or oats in order to reduce the grains to the proper consistency. Any of these grains, however, makes a very palatable soup, if prepared in accordance with directions. One should eat three meals a day of this soup in accordance with the appetite. The appetite may be fully satisfied at each meal.

Soup Diet No. 3, Vegetable Soup. Chop up raw vegetables of various kinds that can be conveniently secured. Potatoes, carrots, onions and tomatoes make an excellent combination. For instance, two parts potatoes, one part carrots, one part tomatoes and one part onions, will make a soup especially appetizing. Leave the outer skin on potatoes, carrots and tomatoes, but peel the onions. These soups, please, remember, should not be boiled, but simmered for several hours. When the potatoes have assumed the proper degree of softness, the combination is ready to serve. Whatever combination may be used in vegetables, be sure to make onions part thereof, as they give a piquant flavor to the combination. Three meals a day of this soup should be taken in accordance with the appetite. The appetite may be fully satisfied at each meal, though one should not eat unless he can thoroughly enjoy the food.

Vegetable
Soups

Soup Diet No. 4, Salad Soup. Equal quantities of spinach, onions, watercress, celery and tomatoes chopped fine; simmer for several hours; boil a few minutes before serving; add olive oil or butter and salt to taste; eat three meals a day of this combination. When one cannot secure the special articles mentioned, almost any kind of "green stuff" ordinarily used for salads may be used instead.

COMBINATION SOUP DIETS.—*Combination Soup Diet No. 1.* Two meals daily selected from the soups mentioned, with whole-wheat bread and butter, or hard whole-wheat crackers.

Combination
Soup Diets

Combination Soup Diet No. 2. Two meals a day of soup selected from previous diets, with whole wheat bread and butter and sweet fruits as desired.

Combination Soup Diet No. 3. Two meals a day of soup, rice, whole wheat bread and butter and sweet fruit, in accordance with desire. The rice should be prepared as follows:

Place the quantity of rice desired in a vessel; add four times the amount of cold milk; add two tablespoonfuls of olive oil for every half pound of dry rice; place on stove; bring to a boil, and allow to boil for five minutes; set aside, and allow it to swell for half an hour or an hour; boil one or two minutes just before serving it, if it is not sufficiently softened.

Combination Soup Diet No. 4. Two meals daily of soup, salad, whole-wheat bread and butter and sweet fruits or honey, in accordance with desire.

**Vegetable
Diets**

VEGETABLE DIETS.—*Vegetable Diet No. 1.* Two meals of baked potatoes and baked whole onions, both to be combined and chopped together after baking; add butter or olive oil; use peelings of potatoes.

Vegetable Diet No. 2. Two meals of baked potatoes with butter, cream or olive oil, eaten with triscuit and milk.

Vegetable Diet No. 3. Two meals daily of tomatoes, baked sweet potatoes, bread and butter.

Vegetable Diet No. 4. Two meals daily of rice, as prepared in Combination Soup Diet No. 3, baked beans, bread and butter.

Vegetable Diet No. 5. Two meals daily of cheesed onions and potatoes, salad, bread and butter.

Cereal Diets

CEREAL DIETS.—*Cereal Diet No. 1.* Two meals daily of grape-nuts and milk, one-eighth to one-quarter package to be used at each meal. Take as much milk as may be desired mixed with the grape-nuts.

Cereal Diet No. 2. Two meals daily of shredded wheat biscuits and sweet fruit, adding cream and drinking milk with meal as desired. Raisins, figs, dates or bananas may be used as sweet fruits in this diet if desired.

STRICT VEGETARIAN DIET.—*No. 1. Breakfast:* Cereal, sweet fruit, and cereal coffee or herb tea. *Noon:* Fresh fruit and four ounces of nuts. *Evening:* Raw and cooked vegetables, whole grain bread and a cereal drink or sour milk. Honey may be added if desired.

**Milk and
Vegetable
Diet**

LACTO-VEGETARIAN DIET.—*No. 1. Breakfast:* Cereal, sweet fruit and milk. *Noon:* Fresh fruit, adding green vegetables if desired. *Evening:* Raw and cooked vegetables, whole grain bread with butter, and either nuts (four ounces), cheese (four ounces), eggs (two, cooked any way except fried

or omelet), or buttermilk (one or two glasses). Sweet fruit or stewed subacid fruit may be added if desired.

MEAT, GREEN VEGETABLES AND ACID FRUIT DIET.—No.

1. *Breakfast*: Fresh fruit as desired, or just the juice. *Noon*: Meat (not fried), cooked green vegetables, green salad, fresh fruit (four ounces of meat; fruit and vegetables as desired). *Evening*: Similar to the second, or with a larger salad without the cooked green vegetables, or the reverse, as desired. (Broiled steak, freshly ground round-steak hamburger and sea fish are the best meat foods.)

VITALITY-BUILDING ROUTINES.—Whether it be in maintaining or regaining health, vitality is highly important. But what is vitality? How can one know when one has it? It is not a tangible quality nor is there any exact method of measuring it. Vitality is essentially a matter of nerve energy, but it is even more than this. Vitality is energy plus optimism, self-confidence and the will to live. It is made up of general good health and a constructive mental attitude. It is a product of right habits of living.

What is
Vitality?

Some people claim that a person is born with a definite or limited amount of vitality and that this can be saved and wisely employed or wasted, but that one never can accumulate any more than was given him or her at birth.

This is certainly not true, for the law of Nature is progress toward perfection. There is always a constant tendency toward normality. Since the sources of vitality are always available there is no reason why one should not be able to accumulate more when needed.

What are the sources of vitality? Sleep, sunlight, air, water, food and general right habits of living and thinking. Sleep is perhaps the most important source of vitality, though most people do not think of it in that way. They think of sleep merely as physical rest. But many processes are active in the body during sleep. To be sure, much less energy is expended during sleep than during the waking hours so that a surplus can again be accumulated, but this does not fully explain the recuperation which results from sleep.

Sources of
Vitality

Life is a force recognized by all, though we do not know its exact nature, whence it comes nor whither it is going. We know only that it is all about us and that we absorb a lot of

Sleep

it second-hand from the sun, the air, water and food. But we also absorb it directly from the source of all life during sleep. We live, as it were, in a sea of life. When the body is resting and the conscious mind is in abeyance then life can flow into us and through us much more freely than during our waking moments. The amount of life-force we attract and retain does depend to some extent on the capacity with which we were born but also on our habits of living and thinking. By properly regulating the latter we can make wise use of the life we have and thus attract more. So sleep is important in any vitality-building routine.

Sunlight

The well-known importance of sunlight has been covered in other sections of these volumes. The world and all that is in it depend to a large extent upon sunlight for the maintenance of the life processes, so an abundance of sunlight must be included in every vitality-building routine. The value of air and water has also been discussed at length in other sections so will not again need to be considered here. Food, which most people consider so essential, comes last in the list of important vitality-building requirements. We can live much longer without food than we can without air, water and sleep. If there were no sunlight there would be no food.

Food

Bathing, or the external use of water, the practice of regular deep breathing to get the benefit of the air, exercise to keep all functions active, occasional fasts for internal rest to supplement sleep, and constructive thoughts to attract the life-force also are important for building vitality and should not be neglected.

**Wasting
Vitality**

In addition to the vitality-building measures it is important to avoid habits which waste vitality. One might do everything possible to build, but if continually wasting one never would accumulate very much. Failure to give attention to the factors already mentioned wastes vitality; but there are more positive ways of doing the same thing, such as through the use of tea, coffee, tobacco, alcohol, drugs and other poisons, through sexual excess or unnatural sexual practices, through anger, hate, fear and other destructive emotions, through unnecessary motions, through overwork in attempts to get rich quickly, etc.

There are many avenues, both physical and mental, through

which vitality can be wasted almost without realizing it, so every one should study his own habits with a view of shutting any leaks that may be discovered. When this is done the greatest benefits will be obtained from following the vitality-building routine.

The fundamental factors that enter into such a routine are always the same, whether for young or old, weak or strong, sick or well, male or female; but each factor must be adapted to the individual needs. That which suits one may not perfectly suit another. Infinite numbers of requirements demand infinite numbers of gradations of the various measures to meet them, but it is not necessary to list all of them. All persons fall within certain fairly large groups, so by outlining routines for these groups every one will have at least a starting point and with little difficulty can make any other adaptations necessary through the use of the detailed instructions in regard to sleep, sun-bathing, exercise, etc., given elsewhere in these volumes. The point on which there will be the greatest variation is exercise; but if the fundamental rules of exercise are observed no trouble will be encountered. The most important point is to begin lightly and increase gradually.

**The Regimen
and the
Individual**

Children have little need for vitality-building routines. If given half a chance, they naturally make use of all the vitality-building measures. Women and men can use the same routines, merely making whatever slight adaptations in exercise may be necessary. There will be considerable difference, however, in the routines advised for the sick and the well; for there are all degrees of sickness. In the serious cases only the passive factors, such as sleep, water and sunlight, can be employed. In acute diseases, even the last may have to be omitted, except indirectly. The vitality-building routines here given, therefore, have been classified by number, in order that they may be readily referred to in other parts of these books and identified by the person who is to use them. The first routine is designed for well persons.

NO. 1. GENERAL DAILY ROUTINE FOR WELL PERSONS.—

On waking, give thanks (or be thankful) for the new day and new opportunities; for whatever health and strength you possess and the knowledge of how to retain and use it. Whether or not you believe in a God to whom you can render

**Before You
Get Up**

your thanks, the thankful spirit helps in maintaining bodily and mental harmony. Having given thanks or being thankful, resolve to make the best possible use of the abilities you have and to make the day a little better than any preceding ones. Such thoughts at any time, but especially upon awaking in the early morning, put you in close touch with the life-force and are an excellent beginning for your vitality-building routine.

The next thing is to stretch the entire body so as to start up more brisk circulation, loosen the joints and muscles and make you more thoroughly awake. Then practice deep breathing for a minute or two so as to take advantage of the fresh air in the bedroom and still further to "wake up" the bodily processes.

After You
Get Up

You now are ready to get up. It is important to wake up and get up in time that there may be no rushing. Rushing and trying to do several things at once is a waste of energy, hence vitality. The old adage, "The more haste, the less speed," certainly applies to a vitality-building routine. Always avoid tension and mental strain. The self-control developed by getting up on time will also assist in keeping you faithful to your routine.

Now drink at least one full glass of cool water. Your blood and cells need the water, which will also have a cleansing and tonic effect on the stomach. As you drink, realize that you are absorbing life, so drink to the health of all.

The Exercise

The next thing is exercise. The time of day at which one takes exercise will vary, of course, with the individual needs. Those who do sedentary work will find the morning a good time, while those who do manual labor may prefer the afternoon or the evening. Probably the majority will use the morning hour, so exercise will be discussed in this place.

Many varieties of exercise may be taken by the healthy person, so each one should take the kind best adapted to his needs. If one has not been accustomed to exercise it will be necessary to start with light calisthenics and increase gradually. Those who have been taking some exercise but need more or desire more muscle may begin with both standing and floor calisthenics. In a few weeks they may add all developmental exercises. Walking and outdoor games do not fit in

so well at this time but may be employed if this is the only period available. For general health-building purposes it is not absolutely necessary to take any exercise at this time so long as some is taken sometime during the day; but a combination of standing and floor calisthenics, with special attention to abdomen and back, in order to give all the muscles a little activity and to secure the physiological benefits of exercise, will be found helpful. For further details see Volume III.

After the exercise it is well to take a dry friction and tonic cool water bath. Any of the various baths may be employed. **The Bath** (See *Water and Health*, Vol. VI, Sec. 2.) It is not necessary to employ the most rigorous forms; but at least one should work up to the point where sufficient friction and cold water can be taken to produce a well defined glow.

Sometime during the day, preferably about the middle of the afternoon or just before dinner, a walk is to be taken. The distance and speed will depend on the strength and the other physical activities of the day. Owing to the limitations of time, seldom does any one walk too much. All people in good health should try to walk at least three miles a day. Deep breathing is to be practiced while walking. If outdoor games are available they may be taken at this time in addition to or in place of the walking. **Walking**

It is also well to make a habit of taking several deep breaths every hour during the day, in order to take better advantage of the air that is all about us. Every effort should be made to secure the maximum of fresh air both day and night. The more one can be out of doors the better. **Breathing**

Those in a position to get sun-baths should without fail include this valuable health-builder in their vitality-building routine. The middle of the morning or the afternoon is the best time to take these, but any time of the day will do except between eleven and three o'clock in the hottest climates. See *Sunlight a Foe to Disease* (Vol. VI) for full directions. Those who cannot get sun-baths should substitute the ultra-violet irradiations when possible. Owing to their great value, one or the other should be obtained if at all possible. **Sun-Bathing**

In the evening, before retiring, two important things are to be practiced. These are relaxation and autosuggestion. Even with the greatest care some tension will develop during

Relaxation
and Auto-
suggestion

the day. All this should be removed before going to sleep. Perfect relaxation will both induce and make sleep more sound and restful. It includes both the body and the mind; but before relaxing the latter the autosuggestion is used. See *Mental and Psychical Healing* (Vol. VI, Sec. 7) for proper method of employing suggestion. After the suggestion, give thanks or be thankful for the progress made and the benefits received during the day. If an honest effort is made to do so, one can always find something to be thankful for after even the worst of days.

Regularity
in Sleeping

After relaxing the mind sleep will soon result. The retiring hour should be early enough to allow for eight hours of sleep. Remember its tremendous importance and the fact that it is difficult to "make up" sleep that is lost. Regularity in sleeping is much more important than regularity in eating. It is difficult if not impossible to get too much sleep; but many people do not get enough. The hours of sleep are not wasted hours, but among the most valuable and productive of the day. Make the most of them, and you will be ready to start the new day aright with a repetition of your general vitality-building routine.

Routines for
Those not in
Normal
Health

ROUTINES FOR PERSONS BELOW NORMAL IN HEALTH.—The following routines are designed for those who are not in normal health, especially for those who have some chronic disorder. A person who is acutely sick is not in a position to make use of an active vitality-building routine. All he can do is to rest, fast, drink freely of water and have someone give him enemas when needed. Of course, the sick-room should be supplied with ample fresh air. Required special treatment would not come under the head of a vitality-building routine. In chronic conditions the patient generally is up and around and can do things for himself, so a vitality-building routine is helpful. Special treatments are not mentioned in these routines because they are prescribed in their proper places under the various disease headings. The number of the proper vitality-building routine also will be found there.

A word of warning is needed both in regard to giving too much treatment and overdoing the vitality-building measures. Treatments, as well as exercise, deep breathing and even

autosuggestion, all require energy; and sufficient time must be allowed between the various active efforts to get well to allow for full recuperation. Any special treatments needed in a particular case, therefore, should be fitted into the vitality-building routine with this fact in mind.

**Special
Treatments**

One should not employ such strenuous measures, or mild measures so frequently that a night's rest will not afford complete recuperation. The patient always should feel better after any health-building measure employed. A mild fatigue after exercise or manipulative treatment is not detrimental; but great fatigue or a feeling of irritation generally is a sign that lighter measures should be used. Doing too much for the patient may prove to be even worse than doing too little. However, there is little danger of making a mistake if directions are carefully followed.

All who plan to use any of the following routines should read Number 1 also, in order to gain a broader idea of just how the various measures are to be applied.

VITALITY-BUILDING ROUTINE No. 2.—On waking, give thanks and make your resolutions, as advised in Routine No.

1. Stretch and take several deep breaths.

Rise strictly in time to avoid hurry.

Drink at least one full glass of cool water.

These preliminaries are to be followed by any special exercise that may be required, such as for spinal curvature, prolapsed organs, partially paralyzed limbs, constipation, etc. Begin lightly and increase gradually, day by day. If no special exercises are required, then use Self-Applied Movements 27 to 32 described in Vol. VI. These will stimulate all the functions of the body and have an excellent tonic effect.

**Variation in
Routine**

Take a dry friction bath followed by a cool splash bath.

Sometime during the day take a sun-bath.

During the afternoon be sure to take a walk. Two or three miles generally will be sufficient. A moderate pace is preferred.

Practice regular deep breathing often during the day.

In the evening before retiring repeat the special exercises. If no special exercises are required a little stretching will be all that is necessary. When first beginning special exercises, once a day, preferably in the morning, will be sufficient to

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take them; but after a week or two they should be repeated in the evening. Never overdo.

After the exercise go to bed, relax and repeat your mental suggestions.

If possible sleep nine hours nightly.

VITALITY-BUILDING ROUTINE No. 3.—On waking, give thanks and make your resolutions, as advised in Routine No.

1. Stretch and take a number of deep breaths.

Rise in time to avoid hurry.

Drink at least one full glass of cool water.

Take a dry friction bath followed by a cool sponge bath.

Get a short walk before breakfast. Sometime during the day take a long walk; that is, from three to five miles or even more, after becoming accustomed to this distance.

Take the sun-bath and practice regular deep breathing as previously advised.

After retiring relax carefully, and repeat your mental suggestions.

Sleep regularly nine hours.

VITALITY-BUILDING ROUTINE No. 4.—On waking, give thanks and make your resolutions, as advised in Routine No. 1.

Stretch and take several deep breaths.

Rise in time to escape hurry.

Drink a glass of hot water, flavored with a little lemon or salt.

Take a dry friction bath followed by a tepid sponge bath.

Sometime during the morning take a sun-bath.

In the afternoon take a moderate walk of two or three miles, or take Self-Applied Movements 27 to 32 (Vol. VI.) Many people will find it helpful to take the walk one day and the treatment the next, alternating the two.

Follow this with an afternoon sleep of thirty to sixty minutes.

Be sure to do regular deep breathing during the day.

After retiring, relax and repeat your mental suggestions.

Sleep nightly nine hours.

**Routine for
Bed-Patients**

No. 5. ROUTINE FOR BED PATIENTS.—On waking, stretch lightly and breathe deeply.

Drink a glass of hot water, flavored with a little lemon or salt.

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During the morning take a sun-bath, followed by a tepid sponge.

Practice regular deep breathing during the day, but do not overdo.

In the afternoon a dry friction bath, followed by Self-Applied Movements 27 to 32 (Vol. VI) is to be given by an assistant.

**Bed-
Patients,
Daily
Routine**

After this the afternoon nap is to be taken for thirty to sixty minutes.

Before going to sleep at night, be sure to relax and repeat your mental suggestions.

Sleep as long as there is a desire to do so.

FORMS OF DISEASE AND THEIR TREATMENT

Section 7

ABDOMINAL PAIN.—This is a symptom rather than a disease, but because it may sometimes be acute, calling for relief even though the cause is not exactly known, a discussion of the helpful measures is included here. Acute abdominal pain may arise from various causes, a knowledge of which can be obtained from the section on *Interpreting Disease Symptoms*. Some of the most common causes of acute abdominal pain are gas, colic, acute appendicitis, peritonitis and abscess. Chronic abdominal pains may be due to various conditions, some very serious, some less so.

Nature. These pains vary in character and intensity according to the conditions from which they arise. The origin may lie in the stomach, the small or the large intestine, the liver, spleen, kidney, peritoneum, spine or in the pelvic genital organs. The pains may be transient, or they may exist more or less permanently, finally becoming chronic. The intensity of abdominal pain is subject to considerable variation, ranging from slight discomfort to intense agony. Tenderness usually is indicative of inflammation.

Abdominal
Pain as
Symptom

If superficial, the muscular structures or the nerve endings only are involved, or there may be irritation of the spinal nerves; if deep-seated and increased by continued pressure, the internal organs are affected. Localized enlargement of the abdomen is very frequent. If the enlargement is in the upper and central part of the abdomen, the stomach usually is affected; if in the upper right side the liver, gall-bladder or colon is involved; if in or near the groins, ovarian troubles, appendicitis (if on the right side), a gas pocket, or bowel obstruction may be the cause; if low down and central, the bladder, uterus or prostate may be at fault. Enlargement of the abdomen may be due also to abdominal tumors, ovarian cysts causing pain, or to inflammation of the bowels or the uterus or to peritonitis. Fluctuation with pain and accompanied by a general enlargement points to dropsy. In women, when no other cause is apparent, pregnancy should be considered as a cause, especially if the enlargement is symmetrical, central and first noticed at the lower part of the abdomen.

Treatment. Ordinarily, the first thing to do in case of acute

abdominal pain is to drink a glass of hot water. This should be as hot as can be comfortably taken without sipping. If any gas is present in the stomach this usually will cause its expulsion. In any case, the heat thus internally applied will relax any muscular tension which may be present and will improve the circulation, thus tending to remove whatever trouble is present. The first glass of water may be followed by several others, especially if the first one does not give relief or if there is nausea.

Acute Abdominal Pain,
Treatment of

In the latter case after about a quart of water has been taken the finger should be inserted in the throat to induce regurgitation. This cleanses the stomach of whatever irritating material is there. After this has been done more hot water should be drunk so as to reach and influence the intestines.

After having taken the hot water, the next thing is to take an enema. This also should be hot and should be as large as can be comfortably taken, to obtain thorough cleansing of the bowels. The enema should be used whether or not relief is obtained from drinking the hot water. This cleansing of the upper and lower alimentary tract is indicated regardless of the exact cause of the abdominal pain, the hot water being of considerable benefit in case of acute appendicitis. In practically all cases these two applications will give immediate relief, after which effort can be made to determine the cause so any necessary more specific measures then may be instituted to remove it.

If relief still is not obtained, however, and the patient is able to move about, a hot sitz-bath may be effective. This may be



In abdominal disorders, the hot compress is of value. A large towel may be wrung out of boiling hot water by carefully holding either end so as to keep them dry and free of heat.

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Acute Ab-
dominal
Pain, Sitz-
Baths for

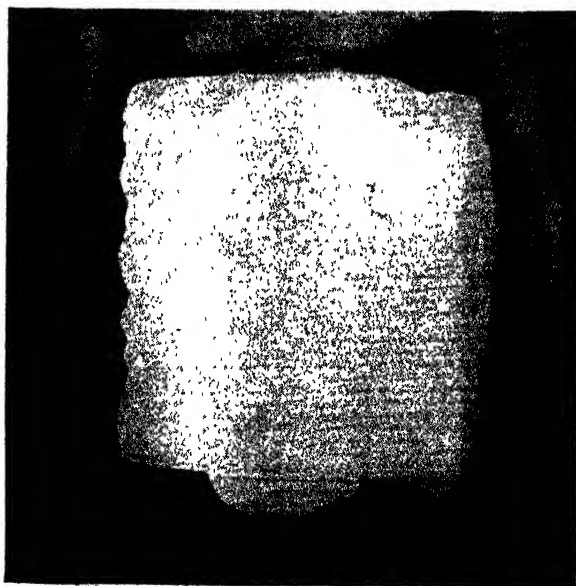
taken for ten to thirty minutes. The water should be as hot as can be comfortably borne and its temperature should be raised somewhat after the patient has become accustomed to the first immersion. The patient's feet should be in another vessel also containing hot water. The hot sitz-bath should be followed by a brief sponging with cold water. Sometimes it is best to alternate the hot sitz and the cold sponging (or the hot and cold sitz when convenient) two or three times.

If the pain is so severe the patient cannot move about, abdominal fomentations, hot abdominal compresses or a hot abdominal pack will be better than the hot sitz-bath. This application should be renewed frequently and continued until relief is secured, or for as long as an hour if necessary. The hot application should be followed by a brief sponging with cool or cold water.

In many cases heat applied by means of an electric heating pad, an infra-red generator, or an electric-light heating lamp will be more effective than water applications, as the heat remains more uniform, and they are more convenient when at hand. In many cases zone therapy will give good results. (See Vol. VI. Sec. 7.) When heat is applied to the abdomen or the trunk or to the whole of the lower extremities it is well to place a cold wet towel on the forehead and the temples or around the neck. These

hot applications are not to be given in case of acute appendicitis, in which very cold applications are indicated.

If there is fever, a cold abdominal pack may be used instead of the hot applications, but it should be allowed to remain and become warm. This pack is covered with dry flannel (see *Heating Compress* under *Water and Health*, Vol. VI, sec. 2) and is allowed to remain on for thirty minutes to two hours or even longer, according to



Abdominal compresses may be applied either hot or cold. They are very beneficial in most abdominal congestions and inflammations, where there is hyperemia, sensitiveness, pain, or flatulence.

need. In using cold applications care is necessary to see that the patient does not become chilled—though there is little danger of this in using local applications when there is fever. If there is reason to believe that pain and fever are due to acute appendicitis, the local cold compresses are not to be covered with dry flannel but renewed frequently enough to maintain a low temperature. In such cases it is sometimes well to apply an ice-bag over a thin cold compress, using care not to have too much weight over the inflamed appendix or to leave the ice-bag applied for more than a few minutes at a time.

In cases of colic, steady and gradually deepening pressure upon the abdomen over the seat of the pain, using the flat of the hand or the fist, often gives relief. When there is gas, massage may be used in addition to the pressure. However, if there is acute inflammation, as in acute appendicitis or acute attacks in chronic appendicitis, neither of these measures should be employed. One usually can determine this readily enough because in case of inflammation the pressure will increase the pain decidedly—though if appendicitis or any abscess condition is suspected *all* pressure should be rigidly avoided. Sometimes lying face downward with a pillow folded under the abdomen will give relief, especially if the pain is due to abnormality of the menstrual function or a simple “stomach-ache.” Or one may lie face downward upon a hot-water bottle, thus obtaining both pressure and heat.

The measures of greatest value in most cases, however, and the ones which should be employed first are the drinking of hot water, the use of hot enemas and the application of external heat in one of the several ways mentioned.

In *chronic* abdominal pain the treatment will depend much upon the location and nature of the pain. As a rule the general routine about to be described can be depended upon to bring about relief no matter where the pain may be located, as the treatment of constitutional difficulties of this nature depends largely upon improving the quality of the blood and all the functions, rather than local stimulation of the affected part, though of course this also is of much value.

One must remember, however, that if he has determined with reasonable definiteness the cause of the abdominal pain, he should treat that particular condition rather than follow out the treatment here outlined.

If the cause is not determined, the following routine is suggested: Complete Fast No. 3 for two days, followed by complete Fast No. 2 for three days. If after three days of complete Fast No. 2 he can conveniently fast for a longer period it would be to his advantage. If he continues the fast he should then break it

Abdominal
Pain, Chronic

in accordance with the fast-breaking routine determined by the duration of the fast.

In cases of this kind it would be advisable to exclude carbohydrate foods because these (starches and sugars), being commonly toxin-producing foods, are not good to eat in any form of sickness. Meat also is unsuitable in conditions where there is disturbance of the stomach. The patient will find it advantageous to restrict his diet to diluted fruit juices, and plain vegetable broths until all symptoms of his ailment have disappeared.

For a general routine, if the patient is possessed of moderate strength, use Self-Applied Corrective Exercise Treatments for Shoulders, Back and Waist (Nos. 9, 10, 15 to 18) immediately upon arising, followed by a dry friction bath, as described in instructions for giving this bath (Vol. VI), after which he may take a partial cold bath by wetting his hands in cold water and therewith moistening every part of the body, rubbing thoroughly dry thereafter. In the evening, give Special Manual Treatments 11 to 16, and Self Applied Exercise Movements 1 to 6. It would be preferable to take the former, provided the patient can get someone to assist him. They are more effective and satisfactory.

Sometime during the day a walk should be taken, during which deep breathing exercises should be freely practiced. If the patient is weak, then Special Manual Treatments 1 to 15 or part of them should be given each day. Corrective Back and Shoulder Movements 1 to 11 or part of them each evening. A dry friction bath should be given by an assistant or taken by the patient following the treatment and the exercises. An assistant is likely to make this bath more effective than when it is self-taken.

Falls and blows upon the abdomen may cause but slight external indications of injury while at the same time they may have severely injured internal organs. In such cases cold compresses should be applied immediately. But if the case has been neglected at first, hot compresses or fomentations are best. Remember, however, that heat or hot applications favor hemorrhage. Absolute quiet should be maintained and a physician summoned at once when possible.

ABORTION.—By this term is meant the expulsion of the embryo before the fourth month of pregnancy. This may be due to an abnormality of the reproductive organs which makes a normal termination of the pregnancy impossible; to certain diseases of the mother or the father, particularly syphilis; or to injury to the mother, especially injury causing the death of the embryo; or to any extreme emotional disturbance or other shock causing a violent reflex contraction of the uterine muscles, including violent purgatives and shaking by riding.

Sometimes conditions of the woman necessitate abortion by the physician, such as (sometimes) abdominal growths, heart and chronic kidney diseases, exophthalmic goiter, insanity, pernicious anemia, pulmonary tuberculosis, and severe vomiting of pregnancy. The treatment of abortion is the same as for "*Miscarriage*," which see for symptoms also.

ABSCESS.—An abscess is a local collection of pus which consists of lymph-like white corpuscles, broken-down cells and other waste matter, and usually germs and their toxins. There are many kinds of abscesses, both superficial and deep-seated. Some common examples of superficial abscesses are boils, carbuncles, felons and sties. Practically all abscesses except tuberculous abscesses, often termed "cold abscesses," are acute and have local symptoms of inflammation.

Abscess
Symptoms

Such a collection of pus may occur in any part of the organism, but it is usually confined within narrow limits by a natural walling-off process accomplished in an effort to prevent a general infection of the entire body. The most common locations for abscesses are the ears, the mastoid, the teeth, the rectum and the breast.

Regardless of their location, however, the fundamental cause of all abscesses is an accumulation of toxins in the body. This is evident because the abscess is distinctly an eliminative process. Sometimes an abscess may be due largely to an infection from the outside from dirt, germs and other foreign material; but even in these cases there is also some systemic toxemia which furnishes further food material for the growth of the germs.

Symptoms (of superficial abscess). At the point at which the abscess is forming a swelling appears and becomes rapidly larger and the skin over the swelling is reddened. As the abscess progresses the discoloration becomes darker, finally taking on a purplish appearance. At the prominent part of the abscess a small yellowish-white spot may form, designating the place where the abscess will rupture. There is severe and throbbing pain. At first the swelling is hard; but as the tissues break down and pus forms, it becomes softer and fluctuation is felt. At this time there is great tenderness to the touch, though the pain may not be so severe.

In the course of a few days the abscess ruptures and discharges a quantity of dark yellow or greenish pus which often contains some blood. Occasionally it is necessary to open the abscess by an incision, the tissue over it being too resistant to permit spontaneous rupture. After the pus has been discharged, healing begins. This may be rapid or slow according to the size of the abscess, the cause of the condition and the vitality and recuperative

power of the patient. The cavity left by the discharge of pus, which is formed by the sloughing of the diseased tissues, begins to close in and finally disappears entirely, leaving a small scar at the point where the rupture took place.

As a rule there are some constitutional symptoms, consisting of moderate fever, hot and dry skin, furred tongue, constipation, loss of appetite, etc. These symptoms rapidly subside as soon as the abscess discharges. In deep-seated abscesses also the general symptoms are present, together with the local inflammation and pain, which varies in severity according to the density of the tissues in which the abscess is located.

Treatment. There are two methods of treating abscesses: the absorption method and the elimination method. The absorption method aims to prevent the further formation of the abscess by absorbing the toxins already collected and eliminating these and the systemic toxins through the regular depurating channels. This method can be used only in the first stages, because an abscess when once definitely formed can be absorbed only with great difficulty.

Abscess,
Treatment

The *elimination method*, just the opposite of the absorption method, is applied during the latter stages of the abscess. It consists in encouraging the formation of the abscess so as to bring it to a head and facilitate the discharge of the pus. This method is especially applicable to external abscesses.

In a case of internal abscesses it is especially important that treatment be begun at the first appearance of the symptoms, in order that the absorption method may be followed. If an internal abscess is allowed to develop and it is in such a position that the pus cannot work out to the surface of the body an operation may be required in order to prevent internal discharge of the pus and a consequent general infection.

Abscesses of the ear, the mastoid process and the brain should also be absorbed whenever possible, for if allowed to form these are likely to produce serious pressure upon or destructive changes in the brain substance.

The *absorption method* of treatment is as follows: at the first sign of pain and discomfort with swelling, thus indicating that an abscess is starting, a fast is instituted. This gives the body an opportunity to devote all of its attention to eliminative work. Copious amounts of water are drunk, an enema is taken daily and the maximum amount of fresh air is secured in order to increase elimination through the ordinary channels. If at all possible, the fast should be continued until all symptoms subside. This may require from three to fourteen days. In the case of young children a diet of orange juice and water may be substituted for the com-

plete fast, the duration of which diet in these cases usually being not over three or four days.

Elimination through the skin is to be increased by means of a general cold wet-sheet pack, or, if the patient is chilly or has low reactive powers, a hot-blanket pack may be used instead. This may be repeated after a day's rest if the symptoms are not subsiding satisfactorily. Complete, or nearly complete rest is to be observed. After symptoms have subsided the fast is broken in accordance with its length, with the appropriate fast-breaking routine.

A strictly balanced diet is to be followed thereafter, but strict care must be observed not to overeat and plenty of water is to be drunk between meals. Vitality Building Routine No. 2 and later No. 1 should also be employed, to prevent any further accumulation of toxins which might make other abscesses necessary to purify the body.

If the abscess is superficial and continues to form after several days of fasting, the *eliminative treatment* may be adopted. This is used also in those cases where no treatment has been employed until the abscess has become well developed. After the several days of fasting Milk Diet No. 1 should be adopted, quickly to improve the quantity, quality and circulation of the blood, thus increasing all the functions of the body, especially the eliminative functions, and increasing the resistance. Fresh air is important.

**Abscess,
Healing**

Under this treatment the abscess will tend to come to a head, which process can be further facilitated by means of fomentations, these to be applied for ten or fifteen minutes at a time and repeated several times a day. Treated thus, an abscess will seldom if ever require lancing. As it is important that complete drainage be obtained after rupture of the abscess one should not attempt to heal the wound rapidly, but should continue applying these hot compresses, using only boiled water and applying very gentle pressure in order to get out all remaining pus or any new pus which forms for several days after the first opening of the abscess. Strict cleanliness must be observed at all times, but the wound should not be covered with a dressing unless it is necessary for cleanliness. If employed, the dressing should be sterile, moist and tepid.

The use of natural or artificial sunlight rays often is helpful for bringing the abscess to a head, especially for facilitating drainage and later healing. See *Sunlight a Foe to Disease* (Vol. VI, Sec. 4). For treatment of tuberculous abscesses see *Tuberculosis*.

ACHYLIA GASTRICA.—Disease of the stomach characterized by defective formation or absence of chyle. For treatment see *Hypopepsia*.

ACIDITY OF THE BLOOD is a term often wrongly used to designate a condition of reduced alkalinity. Life would be impossible if the blood approached an actual acidity. The condition referred to by this term arises from imperfect elimination and an unbalanced diet, with a preponderance of acid-forming foods and an insufficiency of base-forming or alkalizing foods.

During normal metabolism, or the cell activity which brings about tissue changes, various acids are continually being formed, these being decomposed and finally eliminated from the body through kidneys, skin, lungs and bowels. Other acids often are introduced with our foods. When these acids—uric acid, oxalic acid, acetone, oxybutyric acid, etc.—are not eliminated, or when their formation is excessive, the accumulation in the blood gives rise to what is commonly known as acidity of the blood—a reduced alkalinity. This is one of the chief conditions underlying the one parent-disease, toxemia.

The results of this condition are disorders of one form or another; the skin and the mucous membrane may be irritated, giving rise to such disorders as catarrh, bronchitis, digestive diseases, or such diseases of the skin as hives, eczema, etc. When the accumulation consists largely of uric acid certain inflammatory conditions appear, such as are manifested in gout, rheumatism and similar ailments. The various organs and glands undergo modifications in function, and symptoms of great variety may appear, depending upon susceptibility of these organs and of the individual as a whole.

Treatment. Lowered alkalinity of the blood, though often a symptom of some other disorder, is the result of an impaired or reduced activity of the depurating organs due to lowered vitality or enervation and may be treated as an independent condition. By such treatment one often may avoid serious complaints which otherwise might follow.

Fasting is of special importance in nearly all cases, together with the free drinking of water, the cleansing of the alimentary canal and hydrotherapeutic and other general measures for stimulating the depurating processes and for restoring vitality. Exercise is highly important as a means of improving the circulation and accelerating the processes of elimination, though one must avoid exhaustion or pronounced fatigue from exercise, for such will further reduce the alkalinity. Other measures which induce free perspiration, in short, all constitutional measures, will be of advantage.

Flesh foods, alcoholic and other stimulating beverages, white sugar, an excess of starches, and rich and spiced dishes should be avoided. Aside from a fast of longer or shorter duration, it



PLATE 92. In the upper figure is shown acne or pimples.
Lower illustration shows the macular eruption or rose rash characteristic of the secondary stage of syphilis.

will be necessary for the patient to follow a general dietetic routine that will provide an abundance of alkaline mineral elements, cellulose for free bowel activity, and fluid. Such a routine is given in the treatment of chronic rheumatism (see *Rheumatism*). See also Volume II for the Acidosis Neutralizing foods. Where there are symptoms of diabetes, gout, eczema, catarrh, or bronchitis, special treatment for these diseases should be adopted. See also *Autointoxication* and *Toxemia*, the latter in Volume VIII.

ACNE.—An inflammatory, often chronic, disease of the sebaceous glands usually of the face and shoulders and sometimes of the back, characterized by papules, tubercles or pustules, or a combination of several, sometimes a great number of these lesions. The most common site for the disease is the face. In some instances this disease will appear in an acute form, running its course in one to two weeks. As a rule, however, it begins slowly and insidiously.

Symptoms. The eruption generally takes the form of small pale-red, bright-red, or dark-red papules the size of a pinhead or pea. These papules are usually more numerous on the forehead, chin or lower jaw, in many instances interspersed with comedones (blackheads). Generally the gland duct can be seen in the center of the apex of the papule. In many of these cases the skin is relaxed, thick, dirty and greasy and generally has an oily appearance. Whether or not the acne affects the scalp, the scalp and hair are oily in those individuals who have acne. If a pustular lesion is squeezed, a mixture of pus and sebaceous (oily) matter will be expelled. In some cases several lesions will appear at one time, these drying, healing and disappearing while others appear in adjacent areas and go through the various stages. In many cases scarring results after the healing of the pustules, but not always.

Acne,
Symptoms of

Several forms of skin disease are included under the general name of acne, the most common being blackheads, pimples (*Acne vulgaris*), and "whiskey nose" (*Acne rosacea*). While never fatal, acne in any form is annoying and causes an unsightly appearance, often an extreme self-consciousness that becomes a pronounced handicap to the individual. See also *Gutta Rosea*.

Causes. This disease is a common one and the causes are varied. It would seem that in many cases it is reflex, resulting from a neurosis. In some cases a parasite is believed to be the cause; but this acts rather as a secondary factor. Even if the disease were induced directly by a parasitic agent or a certain bacillus in the skin, it would still be necessary to consider the primary and predisposing causes which bring about susceptibility.

Acne,
Causes of

Some of the internal factors are excessive amounts of sweets

and rich foods, digestive disturbances, constipation, uterine or ovarian trouble, chlorosis, general debility and lack of tone of the muscular fibers of the skin. External factors are accumulations of dust or dirt in the pores, lack of cleanliness, infrequent or inadequate use of soap, or anything which tends to block the gland outlets. Drugs are a very important cause. Bromides often are a cause, likewise potassium iodide, also some irritative soaps, especially cheap grades containing tar or its derivatives.

Acne, Dietetic Causes of

The most easily demonstrated causes which the patients themselves recognize are constitutional and digestive disturbances. Indulgence in so called indigestible foods will often provoke a fresh out-cropping. This accounts for those cases in which people, after having suffered a severe illness, upon returning to their former diet experience an out-cropping of acne, the digestive tract not being able to digest the food properly. Fermentative dyspepsia, and especially, dilatation of the stomach, are factors. Excessive use of tea, coffee, cocoa, condiments and tobacco frequently will produce a predisposing circulatory weakness manifested by cold hands and feet. Acne attacks both sexes between the ages of thirteen and thirty, the rich and the poor, especially those of light complexion leading a sedentary life.

Treatment. If general instructions for the constitutional treatment of skin diseases be followed, results of the most desirable character will be obtained. In addition, however, to a general routine for removing impurities from the blood, such as given under *Acidity of the Blood* and *Autointoxication*, various local methods can be used for stimulating the affected parts, thus materially hastening the cure.

Acne, Treatment of

One of the best local treatments for acne is the use of a complexion brush, brushing the skin thoroughly back and forth, up and down, crosswise and in every possible direction, until it is much reddened by the stimulation of the circulation. This friction, both dry and wet, of the skin, should be practiced at least once each day. As a means of still further increasing the activity of the skin of the affected parts a face mask made of comparatively thick linen cloth, wet in cold water and applied at night, will be of distinct advantage. This mask may be allowed to remain on until comparatively dry, and then should be dampened again with cold water. Similar cloths may be applied to the back and the shoulders, if these parts require treatment.

A still more satisfactory treatment for the face, especially in stubborn cases, is alternate hot and cold water, several alternations of each temperature being employed, each treatment to be terminated by a cold application. In exceptionally severe cases a full hot bath three times a week may be employed, or a vapor

or electric-light cabinet bath once each week. Or, if the vitality is normal, perspiration may be induced daily or several times a week by exercise.

Ultraviolet irradiation of sufficient duration to produce light "sunburn" is excellent treatment. This may be given locally by means of a water-cooled mercury-arc lamp or carbon-arc lamp, though where extensive areas are involved the air-cooled mercury-arc or larger carbon-arc lamp will be more convenient. A deep-therapy electric radiant heat lamp or infra-red lamp may be used with excellent effect, also. Do not bruise the pimples by pinching them out.

The constitutional treatment, however, is the important factor in eradicating this complaint. Adopt a vitality-building routine suited to the patient's strength. Give special attention to the condition of the bowels. If these are not active adopt the treatment prescribed elsewhere for constipation. Avoid rich, greasy and indigestible foods, using fruit and simple green salads very freely. Look under *Constipation* in this volume for foods to eat. It will help greatly to drink a fairly large quantity of water, preferably the early morning glass or two being hot. In some cases due, in part at least, to abnormal functioning of the gonads or reproductive organs organography may be used with some hastening effects in the improvement.

ACROMEGALY.—A nutritional disorder having abnormal enlargement of the extremities, head and face, presumably due to disordered function of the pituitary gland. General constitutional treatment, including rest and massage of the enlarged extremities, is necessary; but also internal secretion therapy, especially when the over-taxed endocrine glands break down and asthenia develops. However, some of the symptoms may be removed or relieved. (See under *Organotherapy*, in *Miscellaneous Treatment Measures*, Vol. VI.)

Acromegaly,
Treatment of

ACTINOMYCOSIS.—A rare disease (often called *lumpy-jaw*, and *holdfast*) caused by a fungus or mould, much oftener found in animals than man. The disease begins most frequently in the jaw-bone, which swells and becomes partially destroyed, thence spreads through the mouth until the thorax and, perhaps, the vertebral column are affected. Pus is discharged from the swellings which arise, when these break down. Many of the symptoms resemble those of pulmonary tuberculosis.

Actinomy-
cosis, Causes

There are three types of this disease:

- (a) Type affecting principally the jaw, teeth and neck (lumpy jaw).
- (b) Type affecting intestinal and surrounding tissues.
- (c) Type affecting pulmonary organs, with a tendency to spread to the pleura, ribs, sternum and chest walls.

The disease may be either short and acute or chronic, lasting for years. The first type usually recovers; the second gives fair prospect of recovery; the third usually is resistant to treatment. There is a tendency to recurrence after apparent cure in this disease, but recurrence is not usual after about two years' freedom from symptoms.

Actinomy-
cosis, Treat-
ment of

Treatment. This is a highly complicated disorder to combat. A fast may be of special value in the treatment, since purity of the blood is absolutely essential in order to prevent the formation of pus, or extension of the inflammation which usually is associated with it.

In this instance one should follow Complete Fast No. 3 for six to twenty days, depending upon the clearance of symptoms and the vitality and general condition of the patient. If the patient feels at any time that he has not yet fasted for a sufficient length of time, yet appears to be too weak to continue an absolute fast, then adopt Alternate Fast No. 5, alternating with one of the Milk and Fruit Diets between the fasts, preferably No. 1 or 2. General health-building methods for adding to constitutional vigor, such as are described in Vitality-Building routines, should be adopted, selecting those best suited to the strength and condition of the patient.

ADDISON'S DISEASE.—This is "bronzed-skin" disease, caused by changes (especially tuberculous) in the suprarenal glands. The onset of Addison's disease is insidious, rarely acute. It sometimes is months before the disease shows characteristic symptoms. The disease is commonest between the ages of 20 and 40 years, and is slightly more common in males. It causes a brownish discoloration of the skin, especially over those parts exposed to the light. This mottled condition may extend to the mucous membrane of the mouth and appear upon the soles of the feet and around the waists of women. The most marked symptoms are anemia, thinness, fatigue, loss of appetite, diarrhea or constipation, irritability of the stomach, headache, insomnia, mental weakness, low blood-pressure and very weak heart-action.

Addison's
Disease,
Treatment of

Treatment. This disease generally is classed as incurable, but with well adapted treatment it is not hopeless. If the treatment is begun on the first appearance of the symptoms, recovery may be hoped for; and even if in its advanced stages, a routine such as we prescribe should at least be the means of delaying its progress. The following general treatment is advised: Complete Fast No. 2 for one to three days, followed by Fast-Breaking Routine No. 1 using the milk diet suggested therein. If this is impossible, the Milk and Fruit Diets No. 1 or 3, as taste may dictate; follow with a vitality-building routine suited to the strength of the patient,

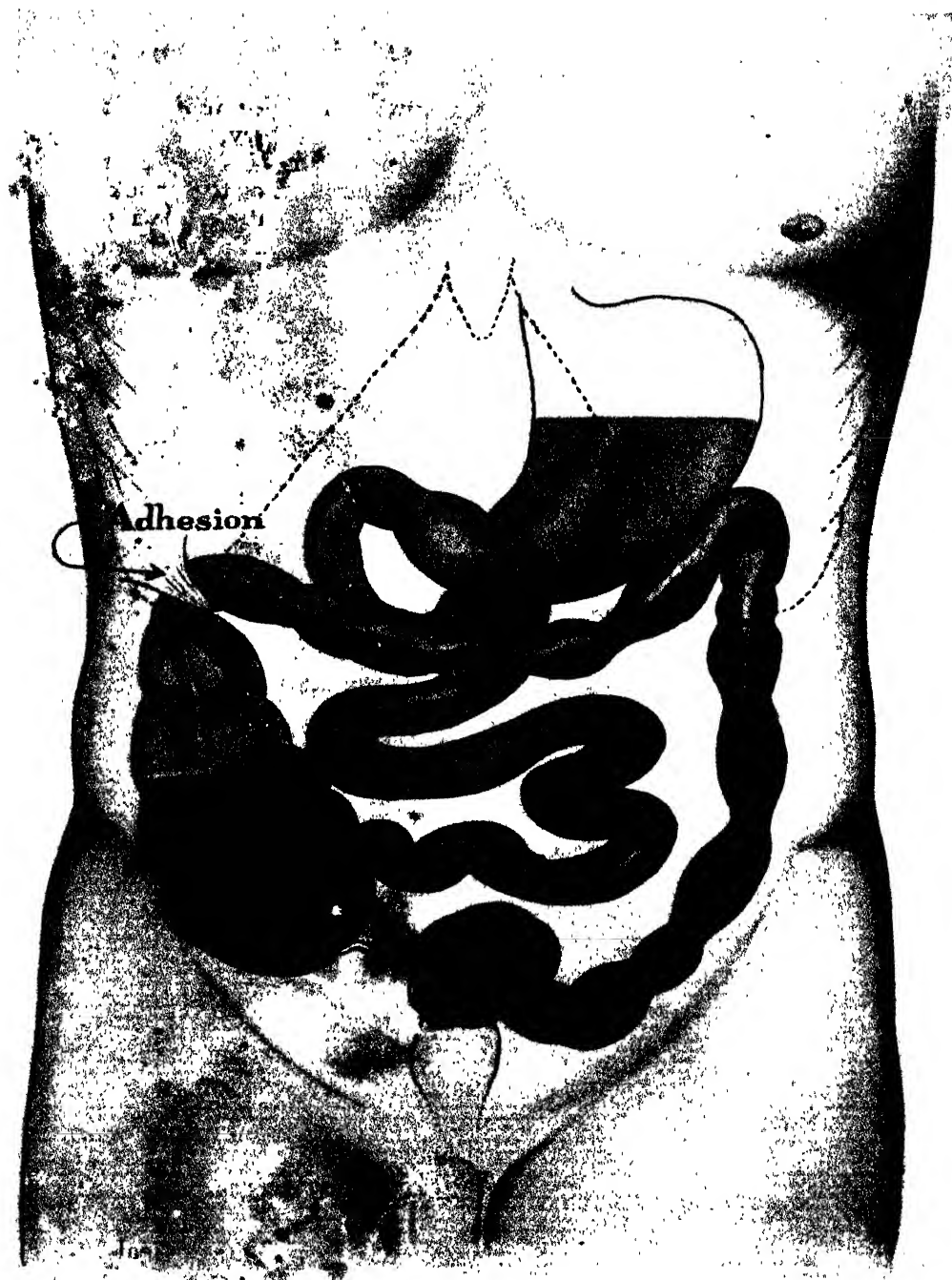


PLATE 93. Presentation of an adhesion of the lower bowel at the juncture of the ascending colon and the transverse colon. The constriction causes bowel contents to crowd the ascending colon, as illustrated. Constipation, also possibility of appendicitis, may result when the waste-products of several meals remain in the intestines.

though using in addition to this a cold girdle or abdominal pack each night before retiring, allowing it to remain until dawn.

As there is likely to be heart weakness in this disease, care must be taken in the use of the cold pack on account of the shock. If the patient is especially weak and has not sufficient circulation to react quickly from the shock of the cold abdominal pack, then this part of the treatment should be dispensed with, or a hot-water bottle placed over the pack to encourage reaction. Instead, abdominal fomentations or a hot abdominal girdle, using a hot wet flannel band, may be applied every day, followed by the cold abdominal pack just mentioned if the patient can react. The best time for the cold abdominal pack usually will be just before retiring.

Daily treatment with a deep-therapy lamp, using the infra-red heating unit and the heating light globe on alternate days, twenty minutes each treatment to the lower dorsal spine, is excellent. Avoid *too much treatment*, for the vitality of these patients is low. Because the disease is structural (not functional) and progressive, organotherapy will be helpful only temporarily; but suprarenal (adrenal) extract is sometimes recommended.

ADENITIS (*Lymphadenitis*).—An inflammation of lymphatic glands. See *Glands, Inflammation of*.

ADENOIDS.—See *Nasal Defects and Diseases*.

ADHESIONS, ABDOMINAL.—These are bands of fibrinous exudate, more or less organized (tissue-like), thrown out on the surface of a serous membrane and uniting the opposing surfaces. They may occur as a result of intra-abdominal inflammation, though perhaps they more often are the result of operations into the abdomen (laparotomy, or celiotomy). They may cause little or no discomfort or disturbance of function, or they may interfere greatly with function and cause much distress. In time, by contraction, they may completely obstruct the bowel or have an equally serious effect otherwise, though as a rule there is not this serious result.

Treatment. Doubtless in some cases operation needs to be performed to "break up" these adhesions or to remove them. The possible disadvantage of this treatment is that there is no assurance that they will not re-form. If one lives in such a way as to keep the intestinal tract and, for that matter, the entire body free from serious toxemia, and keeps the body flexible by a good balance of physical activity and complete relaxation, adhesions will not form from inflammation, or serious complications will not develop in case of adhesions from operations.

In some cases direct treatment may not do a great deal to relieve the condition, but heat often will do much. One may use fomentations over the abdomen for thirty or forty minutes once or twice a day, followed by gradually deepening massage; or heat

Adhesions,
Abdominal,
Treatment of

may be supplied by infra-red generator and incandescent globe, alternating these in daily treatments and continuing each treatment for twenty or thirty minutes. Massage may follow this treatment, also. As a rule, massage while lying head down on an inclined support will be of greater benefit than when lying horizontal. Abdominal retraction should be practiced frequently during the day. Exercises twisting and turning the body in such ways as to stretch the affected part without pain are especially beneficial and are worth trying.

ADYNAMIA.—See *Vital Depletion*.

AFRICAN LETHARGY (*Sleeping Sickness*).—The medical name for this disease is *African Trypanosomiasis* (sometimes *Congo trypanosomiasis*). It is the most common form of *sleeping sickness* (its common name, which see), and is caused by infection with a particular parasite which is introduced into the body by the bite of a certain fly (a species of the tsetse fly). It is common among the negroes of Africa, being endemic in tropical Africa, but is seldom seen in the temperate climates.

African
Lethargy,
Symptoms of

Symptoms. The onset is gradual, sometimes with or without certain prodromal symptoms, such as occipital headache, dizziness, pains in the muscles, chilliness, and some digestive disturbances. The pulse becomes rapid and the temperature often rises. Sometimes the constitutional symptoms are slight, at other times more severe. In the severe cases, however, the onset is sudden, either with or without preliminary symptoms.

In still another form of the disease all of the symptoms are mild and the case resembles one of ordinary influenza. The prodromal symptoms, when they occur, last from one day to one week, when the characteristic symptoms of the disease develop. The most characteristic of these symptoms is a peculiar mask-like and perfectly expressionless condition of the face. As the disease progresses there will be restlessness, insomnia, delirium and mania for a time, followed by a lethargic condition which may vary from a state of apathy to complete coma. Sometimes the patient falls into a cataleptic condition.

In addition to all of these nervous manifestations there are muscular pains, rigidity, tremors, especially of the abdominal muscles, and sometimes paralysis of various parts of the body. It is a peculiar coincidence that sleeping sickness and influenza have appeared simultaneously several times during the past thirty years. The duration of the disease usually is many weeks. It may even run into months, but rarely more than eighteen months. The disease itself or some intercurrent disease usually proves fatal. Complete recovery by usual methods of treatment rarely if ever takes place.

Treatment. Since this disease is due largely to a parasite which is difficult to eliminate, prevention is of the utmost importance. Sanitation is a primary necessity. All breeding places for the flies should be cleaned up and all houses should be kept carefully screened. It is necessary at times, also, to destroy the animals that harbor the parasites with which the tsetse fly infects man. If one does become infected and the disease develops, a combination of eliminative and vitality building treatment should be used. During the first stages of the disease, when there is fever, fasting, water drinking and the enema should be employed until the fever has subsided. One or two cold-sheet packs may also be given allowing a day's rest between.

**African
Lethargy,
Prevention
and Treat-
ment of**

After the fast Milk Diet No. 1 may be used, together with Vitality-Building Routine No. 2, in order to increase the resistance and at the same time maintain active elimination. A sweat bath or a cold pack may be employed twice a week. The fever, if it recurs, indicates a fast again until it is gone, and the milk thereafter.

This treatment is to be continued until the desired results have been obtained. If it is started promptly it is often possible to prevent the disease proceeding to the stage of extreme lethargy and somnolence. If it does reach this stage, special attention is to be given to Special Exercise Treatments in Volume VI, covering the entire body, but using only part of the movements for each section so as not to make the treatment so vigorous as to exhaust the patient. If it is impossible to obtain a good grade of fresh milk, dried or canned milk may be employed with the addition of oranges or other fresh acid fruit. If impossible to obtain any satisfactory milk, then a diet mainly of raw foods, chiefly fruits, vegetables and nuts, should be used, taking plenty of water between meals. In this disease prevention is most important; but if this fails, then prompt treatment at the first stage becomes of extreme importance.

AGALACTIA.—Absence of milk in the breasts after childbirth. Total absence of milk in the breasts after labor is rare, though the flow may be delayed days or even weeks, and often be deficient in quantity and quality. Among the *causes* are heredity (rare), general ill health with anemia, excitement, exhaustion, under-feeding, over-feeding, highly spiced food, general toxemia, insufficient sleep and rest, lack of confidence in being able to nurse, breast compression, frequent miscarriages, especially toward middle life, early weaning or avoidance of nursing of previous babies, sometimes prolonged suckling of previous babies.

**Agalactia,
Causes and
Treatment of**

Treatment. The best treatment is prophylactic—keeping the health at the best during and even before pregnancy. The woman whose responsibility and whose desire it is to bear and rear children

should appreciate the fact that no substitute can completely take the place of normal mother's milk; also that for the sake of herself, and of the child other than in regard to milk feeding, she should keep her health at the highest degree possible. Her diet should be ample, but not in excess, largely of raw foods, with fair quantities of milk, cream and butter. Constipation must be avoided and considerable water should be drunk regularly. General exercise and fresh air are important. Sexual indulgence should be entirely avoided during pregnancy or at least greatly reduced in frequency and when indulged in should always be completed by the woman.

Agalactia,
Organ-
otherapy in

After childbirth if the milk supply is deficient there should be the same attention to diet, water drinking, relaxation, freedom from constipation and avoidance of or moderation in sexual relations. The breasts should be milked dry, by gentle milking action with the fingers, if the baby does not empty them. The breast-pump should be avoided. Considerable milk should be used in the diet, and nuts should be preferred to other protein. Nuts and milk are the best of all foods for increasing the flow of milk; but fruits and vegetables are highly important. Breast massage may be beneficial, the manipulation being toward the nipple.

Sometimes internal secretion treatment will be of value, especially if the ovaries give evidence of reestablishing their function. Activity of the breast in lactation retards ovarian activity and postpones menstruation. If the general condition or excessive sexual indulgence permits unusual ovarian activity, this will check breast secretion. The use of mammary (breast) substance holds the ovaries in check and often establishes breast function. Normal breast activity also aids in shrinking the uterus and restoring it to its pre-pregnancy size.

Mammary extract in agalactia will be valuable in case the uterus remains baggy and enlarged. Placental substance, combined with the breast extract, greatly increases the value of the latter. Electricity has been used with benefit, mild currents being passed through the breasts.

Agraphia,
Causes

AGRAPHIA.—A mental or nerve derangement characterized by inability to write or express ideas in writing. It sometimes is due to "word blindness," or inability to recognize printed or written words; sometimes to amnesia (which see); and sometimes to motor-nerve disturbances which interfere with the movements of hand and arm, causing incoordination. See *Aphasia*.

AGUE.—See *Malaria*.

ALBUMINURIA.—This cannot be described as a disease in itself, being merely a symptom of disease. It is a condition in which a greater or less quantity of albumin is found in the urine, normal

urine being free from albumin. Albumin may be present in the urine in small quantities when there is too great strain upon the body, or excessive wear and tear of tissue; when persistent, especially when in large quantities, it becomes of serious moment. It always should be looked upon as a symptom of importance; in no case should it be neglected.

**Albumi-
nuria,
Symptom
of Disease**

The acute forms of albuminuria generally are temporary and quite amenable to treatment. Every effort should be made to determine the cause, in order that more intelligent treatment may be applied toward its correction. Physiological causes of acute albuminuria include violent exercise, excess protein in the diet and mental or emotional disturbances or shock. The symptom disappears of itself as the diet is corrected and bodily equilibrium is restored. Besides acute nephritis or Bright's disease, pathological causes of albuminuria include acute communicable diseases, fevers, abnormalities of pregnancy, apoplexy, poisoning of various kinds, and severe nervous disorders.

The condition of albuminuria consists in the sudden appearance in the urine of more or less albumin. It may occur in certain acute conditions, in the terminal months of pregnancy, etc., but it always denotes an abnormal condition of the kidneys. Acute albuminuria, when pronounced, is frequently accompanied by headache, nausea, vomiting, disturbances of vision and sometimes mental aberration. There frequently is puffing of the eyelids, face, ankles and hands, though these conditions are due to the circulatory disturbances brought about by the same condition which produces the albuminuria.

The *treatment* in each case depends upon the cause and will be found under the appropriate heading. While albuminuria is really a symptom, it demands treatment suited to the circumstances under which it is found. See *Kidneys, Diseases of*.

**Albumi-
nuria, Treat-
ment of**

ALCOHOLISM.—*Acute alcoholism* may vary from ordinary drunkenness to delirium tremens. It is due, of course, to the excessive consumption of alcoholic liquors or to moderate consumption when there is special susceptibility.

Symptoms. The symptoms of acute alcoholism, or acute intoxication or drunkenness, are incoherent speech, quickening of the pulse and respiration, subnormal temperature, flushed and congested face, nausea and vomiting (sometimes), inability properly to coordinate movements, lack of mental control manifested chiefly in mental excitement, pupils at first contracted and later dilated, stupor and coma. In this last stage it is found that the person can be temporarily aroused, but soon relapses into his previous condition. The pulse is full and bounding, the breathing is not noisy, though the cheeks puff in and out. After a deep sleep of

**Alcoholism,
Acute,
Symptoms of**

varying lengths of time the individual awakens naturally, but usually is somewhat mentally confused, has a more or less severe headache, bloodshot eyes, lethargy, even pronounced weakness, foul taste, some degree of nausea or stomach distress and usually an irritable temper.

Chronic Alcoholism affects chiefly the nervous and digestive systems; but also the veins of the face become congested, the eyes are reddened and watery, the whites of the eyes often being more or less yellow, the nose becomes larger and red from dilated and congested blood-vessels, the tongue is furred, the breath heavy and the voice husky.

**Chronic
Alcoholism,
Symptoms**

The first symptom noticed in those who are heavy drinkers is the feeling of nausea which they experience in the morning upon arising. They cannot concentrate their thoughts. They are morose, cross, and irritable until they have had their morning drink. They have no appetite and when they do try to eat nothing has an agreeable taste. As time goes on and the drink habit continues, the walls of the stomach become congested and hardened and frequent vomiting takes place.

Other organs become congested, especially the liver. The later stages are marked by enlargement or contraction of the liver. Those who are addicted to the use of whisky and drinks of like nature sometimes are afflicted with a contracted and hob-nail liver. Those who use beer and drinks of that nature may have what is known as fatty degeneration of this organ, or enlarged liver, some of these livers weighing as much as forty pounds. The digestion is greatly interfered with, food sometimes will remain in the stomach for several hours beyond normal time, and when ejected will be found not to have been acted upon by the gastric juices. This indigestion has the effect of depleting the vitality, and the unfortunate one becomes nervous, weak and emaciated.

The nervous system in general is powerfully affected by alcohol. First, with tremors of hands and tongue and loss of acquired mental capacities, such as is manifested in reasoning and speech; and later, with loss of the natural intellect, which directs locomotion and equilibrium. The brain now has become congested and inhibits the nerve-cells from acting properly. Likewise, the nerves themselves become inflamed and the patient develops *alcoholic neuritis*. The kidneys, blood-vessels and the optic nerve undergo more or less degeneration.

**Delirium
Tremens**

Delirium Tremens. Delirium tremens often occurs after persistent and excessive drinking or from the sudden cessation of drinking, or from shock in an alcoholic subject; also, occasionally, following a drinking bout by one not used to alcoholic beverages. The onset usually is not sudden; there is, as a rule, a period of

insomnia, restlessness and nervous depression for a longer or shorter time, usually for a few days, before the attack. There may be unpleasant dreams and hallucinations, often of unusual animal shapes. Then there suddenly develops the acute attack of delirium, which is noisy, the subject fighting and in terror of horrible imaginary animals (rats, snakes, etc.) which are attempting to bite or to crowd around or crawl over him. There are wakefulness and severe trembling of limbs and tongue.

Treatment. Ordinary cases of *acute intoxication* require no treatment other than sleep and abstinence from alcohol. In the more severe cases the stomach should be emptied by having the patient drink several glasses of hot water and then placing the finger in the throat to produce vomiting, or by the administration of an emetic. The bowels should be emptied also, by the use of one or more enemas. Cold compresses should then be applied to the head and rest enforced.

Alcoholism,
Acute,
Treatment

After an hour or so, if excitement continues, a neutral bath (99 degrees) should be given and continued till the patient becomes calm. In case of a very vigorous man a cold shower immersion, douche or pour (75 to 60 degrees) followed by vigorous friction will prove effective. On the other hand, if the patient is weak and his condition verges on coma a hot-water bottle should be applied to the feet and brisk friction given to the entire body. The free drinking of hot water is to be encouraged and plenty of fresh air should be provided. No food except perhaps unsweetened citrous fruit juices should be allowed until all symptoms have subsided, and it would be well to provide nothing but such juices or fruits for a day or two after this.

In the treatment of *chronic alcoholism* it is essential that those methods be adopted which are necessary to restore vitality and general vigor of the body. All of the tissues are affected by the alcohol, consequently the brain is befuddled, the character weakened, and in many instances the will power is almost lost.

Alcoholism,
Chronic,
Treatment

There is no better method of giving a victim of this affliction an opportunity to secure control of himself, at least in the beginning, than by a partial fast. The fasting process, especially when large amounts of water are drunk daily, washes out impurities and materially improves the chemical balance and tone of tissues and the functions of all organs. At the same time the individual requires neutralizing mineral elements and the assistance to the morale provided by "fruit fasts" or fruit diets. Therefore, in the treatment of chronic alcoholism, Alternate Fast No. 6 is suggested. The fruit periods may be lengthened and the actual fasting periods shortened for the first ten to twenty days, as required.

The average case will not require more than two, or at most

three periods of combined fruit diet and fast. In this condition the patient may be allowed more oranges (or other fruit) than will be required in other conditions—as many as twelve to fifteen oranges daily or the equivalent in other fruit selected being permissible. The fast is to be broken by a suitable fast-breaking routine, according to the length of the fast. It will be especially beneficial if the fast or fruit diet is followed by an exclusive milk diet, as outlined in Milk Diet No. 1. A milk and fruit diet may be equally satisfactory in many instances.

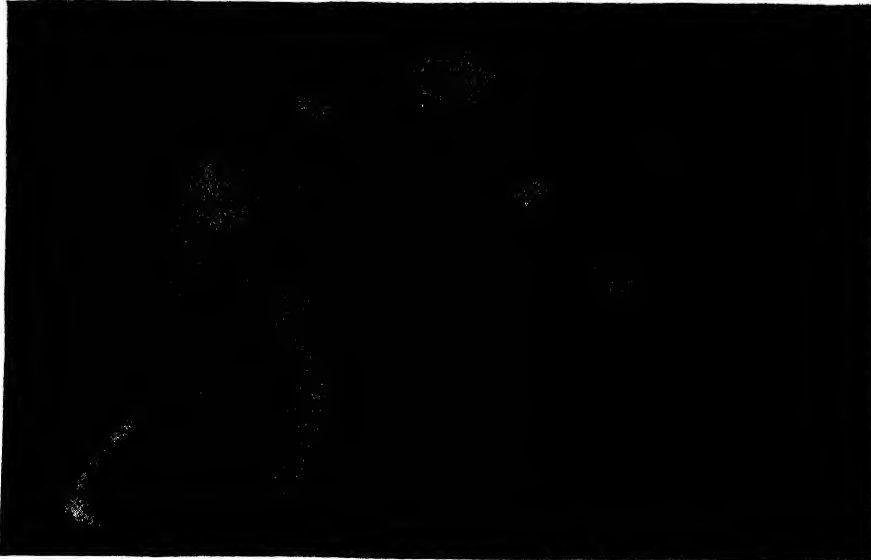
A vitality-building routine applicable to the strength of the patient should be followed (see Sec. 6). Steam baths, electric-cabinet baths, or blanket packs, provided the patient is not too emaciated or enervated, will be of material advantage, by bringing out through the skin many of the systemic toxins. Any of these sweating procedures may be given two or three times a week, followed by a bracing cold or cool application, preferably a shower, a douche or a cold wet-sheet rub. Daily tonic baths are advisable also, but should be accompanied and followed by friction.

Cold compresses to the head and the back of the neck are valuable for relieving cerebral congestion; but for this purpose is especially recommended a daily cold half-bath or cold sitz-bath, preferably the former, with a cold application to the head or about the neck at the same time and with the feet in hot water (during the sitz-bath), to be dipped in cold water for a moment after the bath. The girdle after a neutral tub bath at bedtime is excellent for insomnia.

Delirium
Tremens,
Treatment

In *delirium tremens* it is important to assist elimination in every way possible. No food should be allowed, but the patient should be encouraged to drink plenty of hot water. If the patient insists upon it, this may be flavored with lemon, but it is best taken plain. If the patient will not drink much water, try to have him retain a full warm enema. If the first injection of water is returned, it will serve to cleanse the bowels, which is important, and a second injection may then be given and will be more likely to be retained. Next, a hot-blanket pack may be given to induce free perspiration. If facilities for the pack are not available the hot immersion bath may be substituted. Every effort should then be made to induce the patient to rest in a well ventilated room. These cases usually require constant attention.

Further treatment is designed to overcome the chronic alcoholism which usually precedes the appearance of the delirium. Fasting and fruit diets should be continued as already suggested. Enemas are to be continued as necessary. After the fast, Fast-Breaking Routine No. 2 would be indicated, then Milk Diet No. 1. If fruit is used the milk diet may follow immediately. The milk



Alopecia Areata (localized baldness in isolated spots). This may be caused by constitutional disturbances or may be of parasitic origin.

diet is of the greatest importance because the kidneys are practically always affected in these cases. If the patient is overweight, the quantity of milk may be limited and more fruit taken.

A hot abdominal pack may be applied daily until there has been definite improvement. Thereafter, a daily alternate hot and cold sitz-bath is suggested. A vitality-building routine suited to the strength of the patient should be followed religiously and mental suggestion employed to help overcome the craving for alcohol.

ALOPECIA AREATA (Localized Baldness).—This is a form of baldness in which loss of hair occurs in patches. Occasionally the symptoms come gradually but generally the onset is sudden. The exact cause of this disease is not definitely known, though in all cases there seems to be a disturbance of the nervous system. This may result from an ordinary toxemia, or from mental shock or disturbances, or from a general parasitic infection, as in the case of syphilis. Some cases seem to result from a local parasitic infection. Possibly it may some day also be shown that there is a disturbance of the endocrine glands. In any case, if one lives carefully at all times one is not likely to be afflicted with this disease.

**Alopecia
Areata,
Symptoms**

Symptoms. Circumscribed (limited) round patches of baldness appear, suddenly or gradually. The skin undergoes no change in appearance at first, but later it is likely to become pale and atro-

phied. The scalp is the most frequently affected part; but in extreme cases the affliction occasionally involves other hairy parts, such as the eyebrows, eyelashes, beard, etc., the scalp in such cases usually becoming entirely bald.

Treatment. When alopecia areata occurs in children recovery is usually spontaneous after a variable length of time. In the case of adults treatment does not always produce satisfactory results. Wash the scalp frequently, using soap freely two or three times weekly. Immerse the scalp in hot and cold water alternately, making three or four changes daily to stimulate circulation. Ultra-violet irradiations are sometimes recommended. Follow a good vitality-building routine to develop and maintain the highest possible degree of health.

Amenorrhea AMENORRHEA.—A suppression or absence of menstruation not due to natural causes such as pregnancy or advancing age. See *Menstruation*, *Absence of*, under *Menstruation*.

Amnesia AMNESIA.—Loss of memory for words. This may exist alone or it may be associated with motor aphasia. Specifically, it is amnesic aphasia, which is the inability to bring to mind the name of an object or some other word needed to express an idea. It appears in three forms: simple loss of word memory; word-deafness, or inability to understand spoken words; word-blindness, or inability to understand printed or written words. See *Aphasia*.

Anasarca ANASARCA.—A term which describes the general accumulation of clear watery fluid (derived from the blood-serum) in the cellular or subcutaneous connective tissues. It often follows obstruction of the blood-vessels. The term covering all such accumulations is *dropsy*. In any case the treatment should consist of the constitutional methods prescribed for *Dropsy*, which see. (See also *Kidneys, Diseases of*, and *Heart, Diseases of*.)

Anemia ANEMIA.—This is a condition in which there is a reduced amount of blood or a deficiency in the number of red blood-corpuscles or of hemoglobin. There are various forms of anemia: Chlorosis, acute anemia, chronic anemia, and pernicious anemia. Anemia is further classified as primary and secondary. *Primary anemia* occurs apparently as an independent disease, due to some abnormal condition of the blood-making organs or to some influence destroying the blood-cells after their formation, yet the exact cause of which usually cannot be determined. Pernicious anemia (and some say chlorosis) is one of these primary anemias. *Secondary anemia* is the form resulting from some disease or abnormal condition that can be determined: hemorrhage, lactation, albuminuria, cancer, suppuration, tuberculosis, toxic agents, such as lead (poisoning) and bad hygiene.

Acute Anemia occurs only when there has been a sudden loss of blood by external or internal hemorrhage. It often occurs as a result of injury or operation. In these cases anemia cannot be considered a disease. The blood-making organs are still in normal condition and are able to repair the loss of blood within a reasonable time if supplied with the proper building materials through adequate nutrition, including provision of ample quantities of water, and general right habits of living. Certain disease conditions, however, may give rise to sufficient hemorrhage to bring about an acute anemia; for instance, the bursting of an ulcer of the stomach or the intestine, or hemorrhage from the lungs or the uterus, prolonged nosebleed, or rupture of a blood-vessel in any part of the body as a result of disease or other cause. The anemia may develop within an hour, or it may be several days in reaching the climax, as a result of repeated small hemorrhages.

Anemia,
Acute,
Symptoms

Chronic Anemia, which is of slower development and longer duration, is characterized by symptoms to be mentioned later. Women are much more subject to chronic anemia than are men, principally owing to the fact that they have about one-tenth less blood in proportion to the weight of the body and because they have two functions peculiar to their sex: menstruation and lactation. Intestinal parasites also are a fruitful cause of chronic anemia, so are chronic dyspepsia or indigestion and chronic constipation. A fever, or the general condition making a fever necessary, may be of such severity as to result in a chronic anemia.

Anemia,
Chronic,
Symptoms

Chlorosis, or *green-sickness*, is found in young maturing girls, beginning at the age of puberty. In this condition, in addition to the usual symptoms of anemia, the following may also appear and are common: A greenish hue to the skin, a perverted appetite (the sufferer often craving unnatural articles as food) and attacks of intense pain in the stomach. There may be mental dulness or stupor, combined with vomiting and double vision. The causes of chlorosis are the same as those that ordinarily produce an anemic condition. The artificial environment which surrounds young girls, and their devitalizing habits, especially at a critical period of their lives, tend to produce this malady.

Anemia,
Chlorosis,
Symptoms

Pernicious Anemia, a rare form of the disease, appears to be of comparatively modern development. It sometimes occurs during pregnancy, generally in women who have borne children in rapid succession, though men are more susceptible to the disease than are women. It is a serious condition, usually coming on in the middle period of life. It has all the symptoms to be given later, in marked degree, also a lemon-yellow hue of the skin. The blood, especially the red corpuscles, undergoes marked changes in this disease.

Anemia,
Pernicious,
Symptoms

**Anemia,
Pernicious,
Causes**

Causes. Like nearly all diseases that vex humanity, anemia, in most cases regardless of their nature (except for acute anemia), is the result of impurities (toxins or poisons) circulating in the blood and the lymph streams, a condition which greatly enervates, with a consequent decrease in general vitality. Either the life-streams are charged and clogged with waste and impure substances that should have been eliminated by the excretory organs, or the organs that make the corpuscles are poisoned or reduced in action to the extent that they cannot manufacture the cells, or the corpuscles may be manufactured but destroyed by the poisons. Constipation, insufficient food or nutriment, wrong food and eating habits, indigestion, close confinement, with lack of adequate sunlight and fresh air and dissipation of energy in various ways are the most prominent causative factors that lead to the condition of anemia.

**Anemia,
Pernicious,
Symptoms**

Symptoms. The symptoms may develop rapidly or slowly, according to the cause; but they include chiefly pallor of the skin, which is cold and sometimes clammy, giddiness, weakness and faintness, noises in the ears, swimming before the eyes, small and rapid pulse, low or subnormal temperature, restlessness, air-hunger or shortness of breath, coldness of the extremities and the face, pinched features, loss of normal redness of the conjunctiva lining the upper and lower eyelids, pallor of the gums, whiteness of the finger-nails due to pallor of the flesh beneath them, later nausea and reduced appetite. Rarely convulsions occur. When due to loss of blood the patient finally goes into collapse if the cause of the anemia is not controlled and death may ensue.

**Anemia,
Pernicious,
Treatment**

Treatment. In treating any case of anemia the primary disease or condition, if determined, should receive chief attention. In any case it is necessary that one produce blood and at the same time undergo a blood-purifying process. Though adequate nutrition is important, care must be observed not to overfeed, as it may bring about further hemorrhage or an aggravation of the causative disease. The first essential, in chronic cases, is an aseptic fruit diet; in acute cases, a diet high in quality rather than quantity, using foods rich in mineral elements and vitamins; milk and milk products, egg-yolks, cream, green vegetables and perhaps liver and beef (though the last usually is not necessary). Special food preparations on the market may be used also. Assimilation is assisted by supplying the patient with plenty of fresh air and either natural or artificial sun-baths. Gland extract, especially liver extract, also may be tried in severe cases and in some cases hemoglobin. Generally an acute anemia can readily be overcome with reasonable care.

In chronic cases, if the patient is above or at normal weight,

then a limited fruit diet may be continued for several days with material benefit. If he is below normal weight, indicating reduced assimilative powers as well as defects in the blood-making organs, then the fruit diet should be continued for but a few days. The great weakness often associated with this condition leads many people to believe that a fast would aggravate the symptoms. Often, however, an increase in strength is apparent while on such a reduced diet, and at times even on the complete fast for a few days. This effect, of course, is due to the improvement in the quality of the blood and to elimination of toxins which destroy the blood and lower vitality.

Anemia,
Diet for

Fruit Diet No. 3 preferably should be adopted and continued as long as the patient feels no unpleasant effects. Or, if the weight and energy permit, one may use Complete Fast No. 3 for four to seven days, and break the fast according to its length. The milk diet (No. 1) is especially desirable in this condition unless one is above normal in weight and even then if the quantity of milk is adjusted accordingly, Milk Diet No. 3 being valuable for a few weeks. This milk diet may follow either the fruit diet or the fast.

A general vitality-building routine applicable to the strength of the patient should be carefully followed each day, increasing the length of the daily walk and the vigor of the treatments or exercises as the strength increases. One should endeavor to build up heart and lung power. Deep, diaphragmatic breathing is essential. An outdoor life, air-baths, calisthenics and light sports will be of great value. If natural sun-baths cannot be taken one should secure artificial sunlight baths daily or the artificial sunlight irradiations for one day, infra-red or radiant light and heat on the next day, repeating this alternation; or using either infra-red or globe irradiations entirely will be of benefit. The patient should sleep out of doors if possible and abstain from prolonged or concentrated mental effort. Fruit and fruit juices are highly beneficial and should be used freely in the general diet that later follows. Fresh calves' liver added to the diet is often valuable. Constipation must be strictly avoided, by the use of foods which provide ample cellulose. Baths at progressively lower temperatures from day to day should be taken regularly. Sea-bathing, massage, and spinal manipulations are usually valuable. In some cases static electricity and, sometimes, autocondensation, and sinusoidal and other forms of electrical treatment to the tenth dorsal and second lumbar vertebræ, all are of value. Organotherapy is indicated only in certain cases.

ANESTHESIA.—The loss of sensation due to a pathological condition of the nerves, of the nerve centers, or the external end-

Anesthesia

organs of the nerves; it is also produced artificially by anesthetic drugs. When pathological, treatment is the same as for paralysis, as it is a sensory paralysis. For reviving patient when anesthesia is artificially induced see *First Aid in Accidents and Disease* (Sec. 5).

**Aneurysm,
Causes**

ANEURYSM.—A tumor formed by the dilatation of an artery, most frequently the aorta. Its area is circumscribed. The predisposing cause is disease of the arterial walls, there being a weakness and gradual dilatation of some part of the wall of the blood-vessel. The usual underlying conditions are fatty degeneration, syphilis, arterial sclerosis (hardening of the arteries), alcoholism, nephritis, and lead-poisoning. Other disease conditions may be predisposing factors. The exciting cause may arise from a blow upon the chest or the lifting of a heavy weight, or other sudden exertion or influence which quickly raises the blood pressure.

The walls of the arteries, in their diseased condition, become weak and inelastic, hence, from some little strain or extra exertion, the outer wall gives way, and the inner coat of the artery protrudes through the opening. This condition may last for some time without injury to the person; on the other hand it may burst at any moment and instant death follow. Sometimes aneurysm will form at the upper part of the arch of the aorta and by constant pressure will cause an erosion of the sternum, producing a tumor on the anterior aspect of the chest. A *false aneurysm* is produced by the walls of an artery bursting and the surrounding tissues holding in the blood.

**Aneurysm,
Symptoms**

Symptoms. The symptoms vary in character, depending upon the site of the aneurysm. For instance in aneurysm of the aorta, symptoms may include paralysis of the vocal cord on one side, pains in the chest radiating into the left shoulder and arm, pressure in the throat, heart palpitation, local heat, a sense of fulness and weight, throbbing and tenderness on pressure, a feeling of anxiety, cough, sometimes edema or dropsy and dilated superficial veins. While reclining there is a desire to keep the head elevated. In some cases an external swelling will appear in the region affected.

Usually a person having an aneurysm suffers from greatly impaired health, reduced strength, shortness of breath, and a general run-down condition.

**Aneurysm,
Treatment**

Treatment. The treatment of aneurysm should be for the most part constitutional. The weakening of the walls of the arteries, which is the actual cause of this disorder, has been produced chiefly by an inferior quality of blood, which in turn is due, as a rule, to lead-poisoning or syphilis. In other words, the blood has not been able properly to nourish the tissues of which the arteries are constructed, and consequently local disease and weakness in certain parts has appeared. The method of treating this disease,

therefore, depends first upon the purification of the blood-stream.

If the patient is at or above normal weight a fast ranging from five to twenty days should be taken. If below normal weight the fast should range from two to ten days. For the first day or two of the fast Complete Fast Routine No. 1 should be followed, and Complete Fast No. 2 during the balance of the fast. After the patient has fasted one week, Partial Fasting No. 2 may be followed; then Limited Diet No. 3 for two days; after which he may take Limited Diet No. 1, or No. 2, in accordance with his desire. If there are defects in the organs of assimilation, in other words if the patient is thin, it would be of great value for him to go on the exclusive milk diet, such as is described in Milk Diet No. 1, though in this case he should take no exercise and should preferably remain in bed throughout the entire diet. The total quantity of milk a day should not exceed three quarts or, if above medium height and weight four quarts until there has been decided improvement, after which the quantity may be slowly increased to five quarts a day. Because of the danger of increased blood pressure, he should carefully avoid strain.

**Aneurysm,
Fasting for**

If the patient is normal or above normal weight and there are no assimilative defects, then the limited diet routine should be continued indefinitely, keeping careful watch of the weight each day and trying to eat as small an amount of food as possible and still retain strength, endurance and mental clearness. (See Limited Diets Nos. 1 to 3, Sec. 6.) When the weight shows gradual reduction, any increase in the amount of food must be carefully gaged. If the weight begins to increase, then lessen the amount of food.

Select a vitality-building routine appropriate to the strength of the patient, and follow it religiously. Though the patient may not be bedfast, Routine No. 5 perhaps would be best for a while, then No. 4.

Cool baths of all kinds may be recommended, though it is best to apply the water to one part of the body at a time: that is, one arm, one leg, then the feet, then the chest, the abdomen and the back. Gradually, as vitality is increased, a cool percussion bath or cool shower will be of great aid in the treatment. There is a tendency among general practitioners to decry the influence of such bathing in cases of this nature; but there is no remedy that can be more depended upon in this disease.

**Aneurysm,
Baths for**

The application of cold compresses over the affected region may be suggested for the sake of increasing tone and inducing a more vigorous condition of the tissues concerned.

Spinal percussion is valuable and also the sinusoidal current, applied to the vertebra or vertebræ indicated by the location of

**Aneurysm,
Spinal Per-
cussion for**

the aneurysm. In case of aortic aneurysm the seventh cervical vertebra is to be percussed for four to six minutes with brief pauses every half minute. The second dorsal vertebra may be adjusted also.

For some time absolute rest and quiet living, along with the above treatment, is necessary. Avoid stimulation and excitement.

ANGINA.—Angina is defined as any disease or symptom characterized by attacks of suffocation, especially throat diseases which give rise to choking spells. However, excessive suffocation can be produced also by disease in other parts of the body, a good illustration being angina pectoris.

Symptoms. The term angina generally is applied to certain conditions of the throat. *Vincent's angina*, an inflammation of the throat and the nose, presents the symptoms of such inflammation. *Ludwig's angina* is a severe and serious cellulitis of the structures of the neck, and presents marked symptoms of a septic character with swelling, tenseness and a brawny appearance of the tissues, fever and intense prostration. Some people apply the term angina to quinsy. (See *Tonsils, Diseases of.*) It is also given to several other conditions and the symptoms are those of these conditions.

Angina being a symptom rather than a disease, it will be taken care of by special *treatment* required for the particular disease which causes it. Treatment for ordinary asphyxia will be found in the section on *First Aid in Accidents and Disease* (Sec. 5).

ANGINA PECTORIS (*Breast-pang*).—"A peculiarly painful disease, so named from a sense of suffocating contraction or tightening of the lower part of the chest. It is usually associated with organic change in the heart or great blood-vessel."

There are two forms of angina pectoris, the true and the false. False angina is only a symptom and generally results from some disturbance of the nervous system or the digestive tract as a result of imperfect nutrition or the abuse of tea, coffee, tobacco, etc. True angina is due to a hardening of the coronary arteries which supply the heart with blood for its own nourishment. Generally there also is some inflammation of the heart muscle. This inflammation, together with the interference of circulation to the heart, produces the spasmodic pain and hence the suffocation whenever the heart is called upon to do some extra work, especially after some muscular exertion. It is these attacks which caused the disease to be called angina pectoris.

Symptoms. The symptoms vary according to the severity of the disease. In *true angina* the symptoms usually develop from some exciting stimulus, such as fright, nervousness, and physical

Angina,
Symptoms

Angina
Pectoris,
Two Forms

Angina
Pectoris,
Symptoms

exertion. The onset is sudden with very severe pain which reaches its highest degree almost at once. The pain is usually over the heart, radiating to the left armpit and down to the left wrist and inner fingers of the left hand. There is a feeling of pressure or constriction as though the heart were being squeezed. Mental disturbances, great anxiety and fear of death are usual during an attack. The patient, during the attack, stands perfectly still or sits down and bends over with one hand pressed against the chest over the heart. The face becomes very pale and there often are a cold sweat and an interference with normal breathing. Occasionally the patient may faint, though this is unusual. Sometimes an edema or dropsy of the lungs develops.

The attack lasts from a few seconds to one or two minutes and then suddenly ceases, sometimes with the passage of gas. The patient usually is left greatly exhausted for two or three days following an attack, though sometimes this does not happen. There may be several attacks within a period of an hour or two. The disease may last for several years, but it is always possible for the very first attack or for an early attack to prove fatal.

There is a *mild form* of angina in which there is pain beneath the breastbone, and which is more or less severe but not as excruciating as that in the form just described. The attacks in this form also generally come during excitement or exertion and should serve as a warning to the patient to take immediate rest.

In *Pseudo-angina* or *false angina* the pain may be very severe, but is more often likely to be less extreme than in the true form. The distribution of the pain, however, may be the same; there are likely to be cold and clammy hands, neurotic and hysterical symptoms, the patient usually walks about restlessly during the attack and there is considerable mental excitement. The onset is somewhat less abrupt than in the true form and the result is not directly fatal.

Angina
Pectoris,
False, Treat-
ment

Treatment. The immediate treatment for these spasmodic attacks includes rest and the application of hot compresses over the chest and the abdomen. If there seems to be any gas in the stomach, the drinking of hot water is also advisable. If the hot compresses do not soon give relief it is well to alternate hot and cold, applying the hot compress for three minutes and the cold for one, repeating until relief is obtained. This alternate application of heat and cold powerfully accelerates circulation and is very effective.

The constitutional treatment required to overcome the real cause of the attacks is the same as for *Arteriosclerosis*. (See *Arteries, Diseases of*.) The main points include thorough cleansing

**Angina
Pectoris,
Treatment
and Diet**

of the large intestine with enemas and colonic irrigations, repeated short fasts or fruit diets for about three days each at intervals of three or four weeks, with a limited diet of strictly natural food between, together with carefully graduated exercise, deep breathing, sunbaths and plenty of rest and sleep. If a long fast can be taken, it should be followed by the milk diet. This diet is also to be used if the patient is much under weight. Tea, coffee, alcoholics, tobacco and all other stimulants and excitants must be avoided. Exercise may take the form of gradually-lengthening walks until there has been definite improvement. The limited diet is extremely important in conquering this condition. **IT MUST BE PERSISTED IN FOR MANY, MANY MONTHS.** A reduction to or somewhat below the weight standard for the patient's height and sex is absolutely essential.

Many people mistake flesh weight for health—when in reality it represents **SEWAGE** weight that is constantly poisoning the tissue cells, and which has probably been poisoning the flesh continually for years. Because of this continual poisoning bath of the flesh cells angina pectoris symptoms finally appear. It is fruitless for the sufferer to compromise to regain health and preserve life itself. Every angina sufferer must confine the diet to low-chemical-content foods, such as included in the Limited Carbohydrate Diets No. 1 to No. 3, which are made up of 5, 10, and 15 per cent carbohydrate food classifications, certainly until he or she has lost from 20 to even 60 pounds. **THE WEIGHT REDUCTION** (to or below normal, as specified above) **IS ABSOLUTELY ESSENTIAL.** This means that the excessive 'sewage' so insidiously and tenaciously poisoning the flesh cells will be eradicated.

Electricity also has a beneficial effect upon this condition. Soothing diathermia through the heart improves all of the conditions of the heart responsible for the attacks. It may be used at least twice a day at first, then gradually reduced, though the treatments should continue for months. The static condenser discharge also is excellent and may follow the diathermia electrical treatment. Sinusoidal current to the seventh cervical vertebra is excellent, *but never apply this treatment through the heart.* Radiant light over the cardiac region for 20 minutes daily will have a good effect also. Spinal percussion of the seventh cervical vertebra is of much value in many cases, also (as given under *Aneurysm*), where there is heart weakness. In some instances percussion (or sinusoidal current) to the third and fourth dorsal vertebræ will prove better. Rectal dilation will prove helpful in many cases.

Angioma

ANGIOMA.—A tumor of a blood-vessel or lymphatic. See *Tumor*.

ANGIONEUROTIC EDEMA (*Giant urticaria*).—See under *Hives*.

ANKYLOSIS.—A stiffening or fixation of a joint. There are two forms of ankylosis—a true and a false. In true or bony ankylosis the bones which form the joint grow together, thus making a complete continuity of bone, and an absolutely immovable joint. In false or fibrous ankylosis the ligaments of the joint are shortened but there is always some movement, even if only a little. The stiffness is due in part, also, to the presence of fibrous bands between the bones which form the joint.

**Ankylosis,
Causes**

Causes. Ankylosis is caused by disease or injury. From dietetic errors or otherwise the body is overcharged with various toxins. Morbid matter is deposited in the contracted blood-vessels about joints, causing inflammation, so a fibrous exudation is deposited about the joint. When this solidifies the joint becomes immobile. In the case of an accident, if the inflammation is properly taken care of ankylosis will seldom take place. On the other hand, if the inflammation be neglected ankylosis will often result, and it will become a bony ankylosis if the fibrous tissue becomes ossified.

Treatment. When true ankylosis exists there is no possible cure, except through the aid of an operation, the value of which method often is questionable. Where there is false or partial ankylosis, or, in other words, when a slight movement of the joint can be secured, the flexing and manipulation of the joint each day to the extreme limit of its movements will gradually break any adhesions that may exist and will gradually increase the range of movement of which the joint is capable. Of course, in connection with these movements there should be a blood-purifying, vitality-building process. One should remember in treating joints so affected that the movements should never be continued until there is pronounced acute pain, though little good will result from the manipulations if some slight degree of pain is not produced. The passive movements and manipulations are essential and should be given daily or every second day, according to the reaction produced.

**Ankylosis,
Treatment**

Follow Complete Fast No. 3 for two to three weeks and this by Fast-Breaking Routine No. 1. The exclusive milk diet (No. 3 or No. 1) is then advised if it can be followed, though this diet may in the first few days increase the inflammation. If the milk diet does not bring results, one should follow a meatless diet in which there is included abundance of fresh fruits and cooked green and raw salad vegetables. It is important that one drink freely of water and keep the bowels open. A daily wet scrubbing of the affected part with a hard tough bristled brush is of aid.

A general vitality-building routine, adapted to the strength of the patient, should be followed carefully day after day. This

is an essential part of the health-and-body-building methods employed in order to secure satisfactory results.

ANKYLOSTOMIASIS.—Another name for *Hookworm Disease*, which see.

ANOSMIA.—Loss of the sense of smell, often associated with a loss of the sense of taste. It may be due either to diseases which affect the mucous membrane of the part, as in colds and hay-fever, to some disease or injury of the cranial nerves having to do with the sense of smell, to nervous shock or fright, or to obstruction of the nasal passages.

Anosmia,
Causes and
Treatment

Treatment. If there is any primary disease of the mucous membrane this should be treated. Constitutional measures for improving the nervous system are necessary. In most cases a fasting routine adapted to the strength of the individual will be effective in restoring a normal condition. Treatment advised for colds will benefit many cases and the local nose massage advised for hay-fever is recommended also.

ANTEFLEXION.—A bending forward of the uterus upon itself. In extreme cases, the upper part of uterus drops down between the cervix and the neck of the bladder. (See *Uterus, Displacements.*)

ANTEVERSION.—Displacement of the uterus in which the upper body turns forward and the cervix backward, the uterus itself being normal in shape. (See *Uterus, Displacements of.*)

ANTHRAX (*malignant pustule; wool-sorter's disease*).—Anthrax is a disease the particular symptoms of which are produced by an infection with a specific bacillus called the anthrax bacillus (*Bacillus anthracis*) and the morbid matter associated therewith. The germs and associated morbid matter are derived from the dead bodies of diseased animals. For this reason butchers, wool-sorters and tanners, and other workers with dead animals or parts of them are the usual victims. This foreign material is so poisonous that severe symptoms are rapidly produced and prompt treatment is required if the patient is to be saved.

Anthrax,
Symptoms
and Forms

Symptoms. The local symptoms of anthrax vary somewhat according to the mode of infection and are out of proportion to the size of the local lesion. Where anthrax is the result of small wounds the first symptoms to be noted are pain, usually not marked, and redness and swelling at the site of infection, followed by the formation of a yellowish, bloody vesicle. This ruptures and a dark-brown crust forms which later becomes black. The skin around the affected part is swollen, hard, and bluish in color. There is an enlargement of the neighboring lymphatic glands. The general symptoms are not marked at first but rapidly become severe. They are prostration, weak and rapid pulse, faintness, high temperature, severe headache, a bluish discoloration of the

face, and supervening collapse, usually followed quickly by death. The mind is usually clear to the end. This is the cutaneous form of the disease, usually termed *malignant pustule*.

The pulmonary form of anthrax is brought about by the inhalation of wool-dust containing the spores of the disease, as in the occupation of hat-making, rag-sorting, etc. The symptoms are somewhat different from those of the previous form. In this form the onset is very sudden. There are chills, rapid breathing, pain in the chest, rapid and feeble pulse, cough and symptoms resembling pneumonia with high temperature. Edema or dropsy of the chest walls develops and there is expectoration of frothy mucus. This form is called *wool-sorter's disease*.

In the gastrointestinal form of the disease the symptoms resemble those of ptomaine poisoning, with abdominal pains, vomiting, thirst, distension of the abdomen with gas, and diarrhea. This form is known as *Mycosis intestinalis*.

Treatment. The course of anthrax is so rapid that very energetic measures are necessary. If the infection takes place through a small wound, this should be cauterized at the first signs of inflammation, using iodine, a caustic, or a white-hot iron. If the symptoms continue and a pustule forms it should be treated with hot compresses, the same as an ordinary carbuncle. The essential treatment, however, is constitutional for all forms, which, beyond the above local measures, may be treated similarly.

Anthrax,
Treatment

As soon as the symptoms become noticeable a complete fast should be adopted, whether the infection is through a wound, in the lungs, or in the intestines. Plenty of water, either hot or cold, depending upon the temperature of the patient, should be taken by mouth and hot enemas should be used to cleanse the bowels. A hot-blanket pack should be given every morning, continued for about two hours so as to produce profuse perspiration, then followed by a quick, cold sponge bath. If the fever becomes high, however, a cold-sheet pack may be used instead. Complete rest and a plentiful supply of fresh air are necessary. Strict cleanliness and antiseptic precautions are to be observed. The fast should be continued until the symptoms subside, to be broken with the appropriate fast-breaking routine, and followed by the milk diet. Vitality-Building Routine Nos. 4, 3, 2 and 1 are excellent and may be used in the order mentioned as the patient's strength improves.

ANTITOXIN.—See *Vaccination*.

ANURIA.—Complete suppression of the flow of urine. (See *Urine, Retention of*.)

Symptoms. In the obstructive form, which usually is caused by the blocking of one ureter and disease of the other kidney or

Anuria,
Symptoms

from the pressure of neoplasms (new growths) upon the ureters, the symptoms are not marked at first. Sometimes there may be no characteristic symptoms during the presence of this condition. Generally, however, there is slight drowsiness, contracted pupils, low fever, occasional muscular twitching and vomiting. Usually there is no unconsciousness. In cases which do not recover death takes place from cardiac or respiratory failure. Occasionally there are symptoms of uremic poisoning.

Anuria, Non-
Obstructive
Form

In the non-obstructive form, which is sometimes found in the early congestive stage of acute nephritis, in acute fevers (usually temporary), following operations on or injuries to the urinary system, in the late stages of cholera and yellow fever, in hysteria, and in lead-, phosphorus- and turpentine-poisoning, the symptoms are those of ordinary uremia (which see). See *Urine, Retention of*, for treatment of Anuria.

ANUS, FISSURE OF.—A torn condition of the mucous membrane at the rectal opening. The act of defecation becomes extremely painful: there is a smarting, stinging sensation, followed by dull burning and throbbing. The pain may continue for some hours after defecation.

Anus,
Fissure of,
Causes

Fissure of the anus is usually associated with piles or hemorrhoids, and a "sentinel pile" is often found at the upper end of the fissure. Fissures in women are frequently the results of accidents during labor. Constipation and hardened feces in the rectum may cause great straining in attempts at evacuating, thus causing a fissure. If the simple fissure is not soon healed an irritable ulcer is likely to develop, with sensations resembling those of piles, with pain during defecation and a discharge of pus. But fissure or ulcer can be promptly healed without risk.

Treatment. A fast of moderate length in nearly all cases will bring about a cure. Therefore, Complete Fast No. 2 is advised for most cases, to be followed for a period of seven to perhaps fourteen days. If one possesses normal weight the fasting routine, if necessary, may be continued for a still longer period. A hot enema of flaxseed tea (from one half to one pint) or an ordinary hot enema may be used daily for the first three or four days of the fast, and the bowels allowed to rest undisturbed for several days after this. But this is one condition in which an effective dose of Epsom salts may be taken at the beginning of the fast, the bowels then being undisturbed for at least five days, with an enema only every second or third day of the fast after this.

Anus,
Fissure of,
Treatment

Following the fast, the fast-breaking routine applicable to the length of the fast should be followed, though the milk diet is not advised. For the purpose of bringing about normal activity of the alimentary canal, after having satisfactorily broken the fast,

a laxative and aseptic fruit and vegetable diet should be selected (such as Alkalinizing Diet No. 1). Mineral oil should be well incorporated with the food of each meal, at least until it is certain that the fissure or ulcer has healed. Olive oil or sweet oil should be applied to the affected parts at least once a day. It usually is advisable to wash the part with hot soap and water before applying the oil. Hot shallow sitz-baths are excellent. Such baths may be taken once or twice daily. Naturally a vitality-building routine adapted to the strength of the patient would be of value.

ANUS, FISTULA OF (*Fistula in ano*).—An abnormal communication between the rectum and skin surface. It may be complete, with an opening in the bowel and one on the surface; or incomplete, or blind, with but one opening, which may be internal or external. The primary cause is injury to the mucous membrane. The symptoms may resemble those of fissure or be absent except for a discharge of thin pus or a coating of the feces with pus. In early cases the treatment advised under *Anus, Fissure of*, may heal the fistula; but in cases that have existed for some time a simple desiccation operation with an electric heat-producing current usually will be necessary along with the constitutional treatment.

Anus,
Fistula of

ANUS, PROLAPSUS OF.—The result of a weakened and relaxed condition of the rectum and its mucous membrane. Constipation and irritation of the urinary organs are contributory causes.

Symptoms. The rectum seems to turn inside out, and protrudes.

Treatment. Return the bowel, first placing the patient in knee-chest position, then gently manipulating the rectum back into place. Keep the bowels open and feces soft and keep the patient quiet for some time. Cold sitz-baths, and local cold compresses are valuable to invigorate the tissues. Follow the treatment advised for constipation, if the bowels are not regular. See also *Rectum, Prolapsus of*.

Anus,
Prolapsus of.
Treatment

ANUS, ULCERATION OF.—See *Anus, Fissure of*.

APHASIA.—A morbid condition characterized by the loss or the disturbance of the power of speech. It may be due to failure to comprehend ordinary language or properly to express it, because of impaired memory, or it may come about through loss of control of the vocal organs. In the latter case it is known as *motor* or *ataxic aphasia*. *Sensory aphasia*, due to failure of memory of words, is commonly known as *Amnesia* (which see). Inability to write or express oneself in writing is known as *Agraphia*, which may be due to a condition of "word blindness," to amnesia, or to disturbance of the motor nerves concerned.

Treatment. Constitutional measures alone are of value in cases of this kind, for improvement depends upon building up the nervous system and bringing about a condition of such vitality and

Aphasia,
Causes and
Treatment

nutrition that the brain cells have an opportunity to mend and adjust themselves to a normal condition.

The general constitutional and vitality-building routine prescribed elsewhere for mental derangements should be followed. Where there are undoubted motor disturbances or nervous defects, the general treatment for paralysis sometimes will be more appropriate. Systematic exercises of each of the defective functions should be prescribed and followed faithfully for many months, even years when required.

**Aphonia,
Causes**

APHONIA.—This is loss of the voice or of the normal or musical tone of the voice. It is due to some interference with the activity of the vocal cords, mechanical or inflammatory. Aphonia itself is a symptom, rather than a disease. Acute aphonia practically always is due to acute laryngitis, from colds, inflammation or strain, or from excitement, hysteria or some emotional shock. However, it may result from sudden paralysis brought about by apoplexy, embolism, or spinal subluxation resulting from accident. Clergyman's sore throat is one form. It is called *Aphonia clericorum*.

The chief symptom, as the name denotes, is the loss of the ability to speak, sing, or otherwise use the voice except in a whisper. This condition usually is temporary; but under certain conditions or following certain diseases it may last for weeks or months. In occasional cases the voice is lost permanently.

**Aphonia,
Treatment**

Treatment. If aphonia results from laryngitis this condition should receive primary attention. When due to simple nervous causes recovery generally is spontaneous within a short time. Hysterical aphonia may be quickly overcome in some cases by dashing cold water in the face. It also has been treated successfully by the following simple procedures: 1, Pushing the thyroid cartilage (Adam's apple) to one side sufficiently vigorously to cause pain, the patient being taken unaware. The patient almost immediately will use his voice in protest. 2, With the laryngeal mirror in the larynx, as for examination, the patient is asked to phonate (as, for instance, to say "Ah!"). Without thinking of inability, he does as asked, after which, as a rule, he retains his ability to speak. If the aphonia is due to paralysis, treatment should be given according to the cause. (See also *Larynx, Diseases of*.)

Apoplexy

APOPLEXY ("a stroke").—This term is applied to a sudden and generally rather prolonged loss of consciousness followed by paralysis. It is due to hemorrhage from or obstruction of one of the smaller blood-vessels of the brain. This causes pressure upon or interferes with the nutrition of certain nerve centers, paralysis then occurring in the parts controlled by the centers. The fundamental cause of apoplexy in most cases is hardening of the arteries. When arteries are in this condition any sudden exertion

which forces blood in an unusual quantity ruptures some of the smaller vessels, thus producing a hemorrhage. Occasionally, however, the symptoms may be due to obstruction of a blood-vessel by an embolus or by a thrombus. The immediate treatment is the same in any case.

People over forty years of age suffering from some form of kidney derangement or from constitutional diseases producing hardening or degeneration of the arteries and high blood pressure and, perhaps, hypertrophy of the heart are especially subject to attacks of apoplexy. Rheumatic and gouty conditions, alcoholism, long-standing constipation and inadequate water-drinking predispose to apoplexy.

Symptoms. In this disease there are frequently premonitory or warning symptoms. Often, however, these are absent. When present they may consist of numbness and tingling in the limbs, headache, vertigo, nausea, vomiting, bleeding from the nose, disturbed vision, and sometimes a slight difficulty in speaking. There may also occasionally be slight twitching or convulsive movements. During the onset of the attack the symptoms vary with the amount of the hemorrhage and the part of the brain in which it occurs. Loss of consciousness may be sudden or gradual, usually the latter. Following this there is loss of power in certain muscles (those controlled by the brain region affected), and general coma. This may take but a few minutes, but often takes longer. In small central hemorrhages there often is paralysis without coma or loss of consciousness.

Apoplexy,
Symptoms

When coma occurs it may be in one of various degrees. A patient may be able to protrude the tongue or may even attempt to speak. When the hemorrhage is into the pons, when it is intraventricular, or when extensive, the coma comes on rapidly and is very deep. Occasionally general convulsions occur, though these are not common. In cases where there is coma the pupils of the eyes are dilated or unequal, the pulse is slow at first, but in cases that do not do well it later becomes rapid and feeble.

Apoplexy,
Coma in

The temperature at first is either normal or subnormal, later becoming above normal. There often is rotation of the head and the eyes toward the side upon which the lesion exists. There are absence of reflexes, and incontinence of urine and feces. One-sided paralysis (hemiplegia) often occurs, though frequently the patient in time recovers the use of the paralyzed members. The reflexes, which during the period of coma are entirely lost, return on the unaffected side upon the return of consciousness. On the paralyzed side they return only gradually, but afterward may be increased above normal.

Apoplexy,
Paralysis in

There often is a period of early rigidity and stiffness of the

paralyzed limbs, some temperature and headache, difficulty in speech and mental disturbance for some days. The hemiplegia may be partial or complete. It may affect one side of the face and one arm or one leg or the entire side of the body. When the paralysis is on the right side of the body the lesion is in the left half of the brain, and *vice versa*. When facial paralysis also occurs it usually is upon the side of the lesion in the brain. The mildest cases may recover with or without permanent paralysis of face, limbs or speech.

Cases occurring with coma are considered especially serious if the unconsciousness lasts more than 24 hours, or if it becomes deeper than at the beginning, or if there is a rapid rise of temperature within 48 hours, or if respiration becomes very irregular. In paralytic cases which are non-fatal usually no improvement can be expected if the paralysis has not begun to disappear within three months of the time of the stroke. Any disturbance of the mental powers usually is permanent.

**Apoplexy,
Preventive
Treatment**

Treatment. *Preventive* treatment is most important. Those suffering from arteriosclerosis or who already have experienced one apoplectic stroke should be careful, temperate and regular in their living. They should avoid excitement and all excesses in pleasure or work. They should never quarrel. It is best to remain quiet before and after meals and all meals should be simple in nature and limited in quantity. Drinking water should be soft, not hard, and neither foods nor habits should be such as to lead to putting on flesh. Constipation must be avoided. All clothing should be worn without constriction.

In the treatment of an attack, little can be accomplished for the time being to relieve the patient, although everything possible should be done to relieve the intracranial blood pressure. Immediately raise the head and shoulders slightly, loosen any clothes that may be binding about the neck or on the chest, and open a window so the patient may secure a plentiful supply of pure air, for this is highly important.

**Apoplexy,
Treatment
of an Attack**

To relieve the congestion of blood in the head, apply very cold wet cloths about the neck, with small ice packs applied over these wet cloths to keep them cold. Ice-bags or an ice-collar may be used if available. Placing the feet in a hot bath at the same time will be of special value in drawing the blood away from the head.

After having made the patient comfortable following an attack, one should then plan a general constitutional treatment for stimulating the vital functions with a view of hastening recovery.

The necessity for improving the chemical condition of the blood is seen in the fact that the rupture of the blood-vessel, with

the subsequent hemorrhage into the brain, is always the result of disease of the wall of the blood-vessel.

Constipation usually has been present for months or years and usually still exists. If present, use a two or three pint enema at least once a day until natural movements are established.

The fasting process should be absolute in nearly all cases of this trouble. As a rule this complaint comes only to those who are above normal weight, so there is little or no need of nourishment. The fast may continue for two to four days, or, if the patient is much over weight, for as long as seems indicated by the general condition. Use Fasting Routine No. 1 for one day, then Fasting Routine No. 2 for the duration of the fast. Or fruit juice may be given for a few, or many days if the condition permits.

The greatest care must be used in breaking the fast after an attack of this nature. A dietetic mistake might mean a relapse which would be serious. The fast should be broken by adhering rigorously to the fast-breaking routine applicable to the period of time the fast has been continued. The milk diet might thereafter be followed for a short time.

If considerably above normal weight and the digestion and assimilation seem to be satisfactory in every way it probably would be better to adopt the other diet described in the fast-breaking routines, rather than the milk diet. But if the apoplexy is the result of chronic Bright's disease the milk diet should be beneficial in any case, though the daily quantity of milk should not exceed three and one-half or four quarts for several weeks. Fruit Diet 6 or 7, also Salad Diet 5 or 6, should be used for several days every six to ten weeks, according to the general condition.

As to the general routine when beginning the constitutional treatment, hot spinal packs during the morning hours, for half an hour to an hour, are suggested, these packs being changed once or twice and made hotter on each renewal. A cold abdominal pack should be given toward evening if the patient is very warm, with or without fever. If the patient is inclined to be chilly, then a hot abdominal pack should be used, this pack to be as hot as the patient can bear, first applying a cold compress to the head or the back of the neck or both, to be kept on as long as the abdominal pack. Various movements of the spine would be of value to stimulate the activity of the nerve centers, and for this purpose is advised Special Manual Treatments 1 to 7 after the first few days. As a part of the treatment, however, as the patient gains strength, Nos. 8 to 10 could be added, and when he develops sufficient strength to move around, Special Manual Treatments 11 to 16 may be recommended. When the latter are used, naturally the special spinal pack in the morning may be omitted, as this

**Apoplexy,
General
Treatment**

is given during the treatment. Even in the mildest cases the patient should avoid exertion of any kind for two or three weeks. General light massage should be given as soon as the acute symptoms have disappeared.

Faradic or sinusoidal electrical treatments given to the muscles affected are excellent in case of paralysis. As fast as strength is gained the patient should be encouraged to move about and exert himself in various ways, being careful not to go beyond his strength. (See *Locomotor Ataxia* for the most valuable type of exercises—re-training exercises.) Walking is a splendid exercise in such a case. It would be best if the patient could both live and sleep out of doors. Sun-baths and deep breathing are also of value.

APPENDICITIS.—Inflammation of the vermiform appendix. Constipation, a diet that causes intestinal putrefaction, and insufficient physical activity are the chief causes. The disease appears in two forms: acute and chronic.

Appendicitis, Acute;
Symptoms

Symptoms. Acute Appendicitis.—The onset usually is sudden, with abdominal pain, at first general but soon becoming localized in the right iliac fossa (lower right side). There are fever, rapid pulse, nausea, vomiting, constipation and tenderness in the right iliac fossa. As a rule the pain comes on suddenly and is severe, though sometimes it is complained of as a dull ache. The pulse becomes more rapid and is often out of proportion to the temperature. It is often an important indication of the progress of the disease, rapid increase being, as a rule, a very unfavorable sign.

The tongue, though coated, is moist. On pressure in the right iliac fossa a certain amount of rigidity of the right rectus abdominis muscle may be felt and occasionally a swelling may be detected in this location. Very little manipulation should be made in this region, however, as it is not difficult to rupture a thinned-out and seriously inflamed appendix. On account of the rigidity of the right side of the abdomen and the greater comfort the position affords, the patient usually lies on the back with the right knee flexed.

Often at first there is frequent urination but later there may be retention of urine. In the milder cases the inflammation subsides within three to five days and an uneventful recovery takes place. But in the severer cases pus may form in the appendix and that organ may rupture, allowing the pus to escape into the abdominal cavity. Peritonitis may follow, though sometimes Nature will wall off the pus and prevent this serious complication. However, when there is no manipulation of the appendix region, rupture is much less likely to occur, or, if it does occur, will be more likely to take place into the intestines, from which the products of the inflammation will be discharged through the normal

channel. Chronic appendicitis may follow, with recurring acute attacks. The abscess may be walled off, and in an occasional case may rupture spontaneously into the bowel or the peritoneal cavity, on the surface, or into the bladder, vagina, rectum, or even upward through the diaphragm into the viscera of the chest. These rupturings, however, are not common.

Peritonitis, if it develops, is ushered in with an increase of pain, tenderness, which becomes diffuse, swelling of the abdomen, falling of the temperature (usually), vomiting and failing circulation. The pulse becomes rapid and weak and in many cases death occurs either suddenly or gradually from loss of strength.

Chronic Appendicitis occurs in about one-half of the cases where there has been an acute appendicitis. Most of these patients constantly or frequently suffer a slight discomfort in the abdomen; practically all suffer from constipation or diarrhea, and more or less neurasthenia is present. Locally there are some pain and tenderness in the appendix region, coming on after fatigue, strain, coughing, sneezing, errors in diet, or severe constipation. Ordinarily there is no fever; but occasionally there is an acute exacerbation with a slight rise in temperature. Many cases have been found due to hardened fecal matter in the lumen of the appendix. This material has entered as a liquid but after the absorption of the moisture has remained as a hard, irritating substance.

Appendicitis, Chronic;
Symptoms

It may be said that recurring acute attacks are an effort on the part of the local structures to get rid of the foreign material. Operations (often for other conditions) and post-mortems frequently have disclosed the fact that many people have had appendicitis which has terminated in a discharge of the contents of the appendix into the colon, with no untoward results. It must be borne in mind also that countless cases diagnosed as, and operated upon for appendicitis are not such, but mere inflammations of the cecum or adjacent tissues. Many cases of "acute appendicitis" are nothing more than pressure of accumulated gas in the cecum.

Treatment. Operation is generally advised at the least suspicion of appendicitis, but such drastic treatment is frequently not required. Chronic cases, or a first acute attack, if properly treated should not require operation. If one has had several acute attacks and another one develops it is then possible that an operation might be needed. This can be determined only by a competent diagnostician.

Appendicitis, Chronic;
Treatment

If it is accurately determined that the appendix has become abscessed and is on the verge of rupture then the operation may become a matter of necessity with a view to avoid the probability of the development of peritonitis. It must always be remembered,

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however, that removing the appendix does not remove the original cause, so if one depends upon this treatment alone other symptoms are likely to appear later on. Since appendicitis can be cured and since a first attack usually does not require an operation, the patient may avoid the knife if he is willing to submit to the necessary line of natural treatment and mode of life.

Under no circumstances should any drugs be used to relieve the pain! Pain is one of Nature's signals of distress, so, if masked, the true condition may be unrecognized and proper treatment may be neglected. Many ruptures of the appendix have taken place during the painless periods after the use of drugs and have remained unrecognized until a fatal peritonitis has developed.

In *acute appendicitis* the first measure to be observed is to clean the colon in order to remove any putrefying and fermenting matter which may be therein and also to relieve pressure upon the inflamed appendix. This is done by giving small moderately hot enemas of about one pint each, using plain water, and repeating the injections until no more feces are returned. Sufficient time should be allowed after each injection for the complete elimination of the water from the previous one. When the colon has in this manner been completely cleansed a half-pint of olive oil may be injected, using a rectal tube to convey the oil to as near the appendix as possible. It is well to repeat this complete procedure throughout, twice every 24 hours, until the condition is relieved. A fast should be immediately instituted, using Fasting Routine No. 10. When the pain has somewhat subsided, water, hot or cool as desired, should be taken in liberal quantities, although hot water is usually to be recommended rather than cold. After taking as much as one comfortably can, take one-half glass or one glass of the water at frequent intervals thereafter.

Should the pain be too severe to allow of the enemas being given as suggested, the patient may be put in a hot sitz-bath. This bath may be taken in an ordinary wash tub if a sitz-bath cannot be used, allowing the feet to remain in a basin of water. If this begins to relieve the pain within a few moments, the patient may be left until relief is complete, though not, as a rule, over half an hour or an hour; but if the symptoms are apparently aggravated by this procedure the patient should be removed from the bath and cold wet towels applied over the appendix. In some cases an ice-bag may be used over the towels. It must be remembered, however, that the continued application of ice-bags may so numb the tissues beneath as to mask the symptoms as much, probably, as the administration of pain-killing drugs. In addition to this the intense cold is likely to stop all functional activity of

the parts. The drinking of water should, however, be continued.

If fever continues high, a general cold sponge bath may be given and a cold abdominal pack may be applied for two hours after an hour's rest from the cold applications. Avoid *over-treatment*, however, and be sure that the patient secures complete rest in the reclining position.

The fast and the cold wet towel application combined sometimes with the ice-bag usually will bring relief within a few hours. If severe pain continues to return there likely is pus development. Continued use of the fast and the cold application, however, will render many pus cases safe and operation unnecessary. But most authorities commend surgical relief, so very careful judgment is necessary in applying drugless measures. Remember that operation, if needed, is most needed before the appendix ruptures, so decisions must be dependable or peritonitis may menace the patient's life.

In the treatment of *chronic appendicitis* it is necessary to adopt such a course as will prevent the stagnation of the bowel contents, and remove all sources of irritation. Periodical fasting is of special value in this complaint. Especially to be recommended is Fasting Routine No. 2 for three to ten days; use Fast-Breaking Routine No. 1 in case the fast is less than five days; and Fast-Breaking Routine No. 1A if for a longer period. The milk diet is of great value in these cases, even though there is at first a tendency towards constipation. This should be taken care of with the daily enema. If the symptoms of constipation are very severe, Milk and Fruit Diet No. 2 could be followed for a few days. Should the bowels not show proper activity after this diet has been followed for a time, Salad Diet No. 6 would be advised for some time. Mineral oil should be used with either of these last two diets if necessary. Colonic therapy, including low, cool water enemas and colonic irrigations, is of great value in this condition. It may eradicate chronic appendicitis.

Appendicitis, Chronic,
Treatment of

When the acute stages of the disease have passed alternate hot and cold sitz-baths may be used to advantage, every other day for a few weeks; also, if necessary, fomentations over the affected region followed by the heating compress may be used every night for months. Or infra-red irradiation may be used with equal benefit and with less trouble. Massage and manipulations for loosening adhesions and stimulating peristalsis are valuable to prevent recurring attacks. When the patient is strong, Self-Applied Manipulations 16 to 18, 27, 30 and 31 are highly recommended. It sometimes helps prevent acute attacks during chronic appendicitis to wear a flannel bandage secured about the abdomen so as fully to cover the appendix region. This helps prevent sudden chilling.

ARRHYTHMIA.—Lack of rhythm in the heart-beat, indicating something wrong with the heart. (See *Heart, Diseases of*).

Arteries,
Diseases of

ARTERIES, DISEASES OF—Several types of disease are found in the arteries. The most important are: *Arteriosclerosis*, or fibrous hardening of the arteries; *Arteritis*, an inflammation, due to infections, such as syphilis, or a tuberculous process; and *Aneurysm* (which see), a dilatation resulting from diseased walls.

Arterio-
sclerosis,
Causes

Arteriosclerosis is a gradual hardening and thickening of the arterial walls with or without a deposit of lime. This disease usually accompanies old age, although occasionally it is found in the young. The elasticity and contractility of the arteries are reduced and these vessels become more or less brittle. Those of the wrist and temple present a hard and wiry feel to the touch, not unlike whipcord. Chronic intoxications, such as lead-poisoning, tobacco, gout, rheumatism, etc., are sometimes said to be the cause of arteriosclerosis; also certain forms of kidney disease, alcoholism and excessive muscular strain. But the most prominent causes are *inadequate* exercise, constipation and a "heavy" diet, especially one containing an excess of animal protein with a deficiency of fruits, salads and water.

- (1) In the *nodular* form of arteriosclerosis the aorta and some of the largest arteries are affected.
- (2) In the *diffuse* form the larger blood-vessels seem not to be affected, the disease attacking the smaller arteries and the arterioles, especially in the kidneys, the spleen and the brain.
- (3) In the *senile* form most of the arteries of the body are affected. This form is said to be the result of old age; but unless the above chief causes have been at work for several years there will be no sclerosis of the arteries.

Symptoms. The general symptoms of arteriosclerosis in middle-aged persons are giddiness, high blood pressure, pain or tingling of the legs on exertion, progressive loss of physical and mental vigor, increasing pallor, nosebleed from time to time. All of these symptoms may not be present in the same subject. When certain arteries are especially involved there will be symptoms referable to them (heart, kidney, cerebral, or mesenteric arteries or those of the legs).

Arterio-
sclerosis,
Treatment

Treatment. (This same treatment will apply to arteritis.) As arteriosclerosis is entirely of constitutional origin, that is, a defect or disease of the blood itself and of the eliminating organs, the methods of treatment must be adopted with a view of purifying and chemically correcting the blood-stream. In no disease is fasting more valuable than in this complaint. If the sufferer is of normal weight a fairly long fast can be taken with great bene-

fit. Complete Fast No. 2 may be followed for ten to twenty days. A fast-breaking routine applicable to the length of the fast may be used, and Milk Diet No. 1 may be followed thereafter for a considerable period, but with the daily quantity of milk kept below four and a half quarts daily, until a decided improvement has been secured.

The milk diet may add to the weight and may be considered disadvantageous for those who are already of normal weight; but rest assured that a material change will take place in the affected arteries. The large quantities of liquid consumed in the milk diet dilutes the blood, which regains its ability to reabsorb some of the elements deposited in the blood-vessel walls and is inclined to modify the various symptoms of this complaint.

When the milk diet cannot be taken, a combination milk and fruit diet should be recommended, such as described in Milk and Fruit Diet No. 1. Occasionally Fruit Diet No. 1 should be taken for a few days and Milk Diet No. 2 returned to for a few weeks.

Every possible health-building measure which will add to the activity of the circulation should be adopted. Wet-sheet packs, for instance, if applied daily, should be of great value. Be careful, however, that the patient quickly reacts after the cold wet sheets. Hot-water bottles should be in readiness to be placed at the feet and about the body when giving this treatment, in case there should be the least suggestion of chilliness.

If the heart is sound, a hot bath continued until good sweating is produced will be of much value. It should be used not oftener than once a week, and be followed by a cool bath. In case of nervousness, a prolonged neutral bath at bedtime two or three times a week will be helpful. Carefully graduated cool baths, gentle massage (without percussion), and moderate exercise in the open air will be generally helpful.

Arteriosclerosis, Physiotherapy in

Electricity in the form of autocondensation in moderate doses is helpful, though not absolutely necessary, it having the effect, in some measure, of breaking down the calcium deposits in the vessel walls. It also lowers the blood pressure appreciably and safely.

A general vitality-building routine adapted to the strength of the patient should be followed each day. It is, of course, necessary that the bowels be kept active at all times. Complete relaxation by lying-down for an hour or more each day is to be recommended. Avoidance of over-exertion, excitement, worry, constipation, intestinal putrefaction, pathological fermentation and excesses of all kinds are of the utmost importance.

ARTHRALGIA.—Pain in a joint. See *Gout, Rheumatism, and Joints, Diseases of.*

ARTHRITIS.—See *Joints, Diseases of*.

Arthritis
Deformans,
Symptoms

ARTHRITIS DEFORMANS (*Rheumatoid arthritis*).—A chronic and deformative inflammation of the joints. It differs from articular rheumatism in that considerable growths of the bone change the form of the joint, producing a deformity and impairment of function. The deformity becomes intensified by the gradual wastage from disease of the muscles surrounding the joint. Otherwise the *symptoms*, which may persist for years, are almost the same as in articular rheumatism.

The disease begins with pains in the joints, occurring principally during activity, with disagreeable stiffness of the joints, most marked after rest. These disturbances later are followed by loss of joint flexibility. The disease may involve one joint only, such as the hip; or, as is usually the case, several joints of the fingers, hands, vertebræ, etc. Generally the corresponding joints of both halves of the body become affected.

Arthritis
Deformans,
Treatment

Treatment. The general treatment prescribed for rheumatism should be followed in the treatment of this disease, the only difference being that the affected joints should be stimulated by movements in every possible direction, as are described and illustrated under the head Special Exercise Movements in Volume VI. When these movements cannot be taken by the patient himself someone else should give them to him. No method is yet known that will remove an actual and extensive bony deposit as the result of the disease. When the swelling is caused by inflammation it often can be reduced and the inflammation dissipated. When it is due to the formation of hard cartilaginous tissues, in some cases it can be reduced and in others it cannot.

Arthritis
Deformans,
Physio-
therapy in

In all cases the local circulation should be first accelerated by hot wet packs, persistent scrubbing with a stiff-bristled brush, immersion in hot water, if in the limbs, or the alternate use of hot and cold applications, or especially by diathermia high-frequency current or infra-red irradiation. The sinusoidal current is excellent to develop or preserve muscular tone. It may benefit the joints, especially if given after diathermia through the joints. These cases all need fresh air, sun-baths, general massage, occasional sweat-baths, an aseptic diet, and should have some form of sour milk regularly, also cod-liver oil.

Light bandaging of the upper part of the affected extremities, sufficient to constrict the veins but not the arteries (hyperemia treatment) may be used daily for three or four or more hours with good results. Electric-light baths, general and local, static electricity to the affected joints, and wrapping the joints in flannel are additional helpful measures.

ARTIFICIAL RESPIRATION.—See Section 5 of this volume.

ASCITES.—Dropsy of the abdomen, or peritoneal cavity. See *Dropsy*.

ASPHYXIA (*Suffocation*).—Suspended animation from lack of oxygen in the blood. This may result from choking, drowning, poisonous gases, etc. It is the result of injury or accident. Treatment will be found in Section 5 of this volume. Asphyxia

ASTASIA.—Motor incoordination in standing.

ASTHENIA.—Loss of strength. See *Vital Depletion*.

ASTHMA.—Paroxysmal difficulty in breathing (dyspnea) due to sudden spasm of the bronchi or to sudden swelling of the mucous membrane of the bronchi. A hypersensitiveness of the mucous membrane of the respiratory tract seems to be essential to the production of asthma. When this condition exists, asthma may result from heart disease (cardiac asthma), kidney disease (renal asthma), or some outside irritant (hay asthma), or from minor causes which sometimes cannot be discovered. This last is the condition commonly called simply asthma, or bronchial, nervous, or essential asthma. In this form there usually is a more or less pronounced hereditary neurotic temperament. Asthma

Symptoms. These are spasmodic in character and occur at irregular intervals. Attacks of asthma frequently are preceded by an over-wrought or excited condition of the nervous system. The onset of an attack of asthma may be sudden, or there may be premonitory symptoms, such as oppression in the chest, increased and frequent urination, belching of gas, etc. There is great difficulty in breathing, especially in expiration. In many cases it necessitates not only the patient's sitting erect or with elbows on knees, or standing, but the grasping of some fixed object on which he can pull. Asthma,
Symptoms

Such severe attacks as these are accompanied by pale cheeks, a blueness of the lips, dilated nostrils, bulging eyes, and an anxious expression. The pulse is rapid, and there is marked perspiration. The respirations are not rapid, but are labored and noisy—wheezing or whistling. There is often a sense of smothering and an air-hunger. The sufferer will sit at an open window to get all the fresh air possible. He may have a tendency to sit with his elbows on a table or stand with them on a mantle or dresser with the hands pressed to the sides of his face, a position which helps bring into play the auxiliary muscles of respiration. Cough is common.

The attacks often pass as suddenly as they arise, disappearing as the nervous system is relaxed. They may last only a few minutes or for many hours. They may occur frequently or disappear for weeks or months. Irritating vapors, and an exceedingly damp atmosphere are unfavorable and may help to produce an attack. The majority of attacks occur at night.

Hay-
Asthma,
Symptoms

The ordinary variety of asthma has no connection with hay-fever or hay-asthma as regards the cause. *Hay-asthma* is induced by irritating substances, such as the pollen of plants, the dust of roads, etc., and the chief symptom is acute catarrh of the mucous membrane lining of the respiratory apparatus. This causes swelling of the membrane to the extent that breathing is interfered with. (See *Hay-fever*.)

Asthma is sometimes confounded with other maladies in which there is also difficulty in breathing, such as certain forms of heart trouble and lung affection. But the latter are due to organic defects, whereas, bronchial asthma primarily is a nervous disease. In addition to the gradually increased difficulty of respiration, in the later stages of the complaint the victim becomes gaunt, sallow and hollow cheeked; and, in such instances, when the lung loses its resiliency, pulmonary emphysema follows. (See *Emphysema*.)

Asthma,
Treatment

Treatment. Asthma is a constitutional disease, due to general toxemia, defective nerve functioning of the alimentary organs, and consequent irritation of the nervous system. The nervous energy especially must be built up if the affliction is to be overcome or greatly benefited.

In the treatment of this disease one must first recognize the necessity for having the patient as nearly as possible out of doors. Closed rooms of any kind are to be avoided, or, regardless of method of treatment adopted, only mediocre results can be expected. With the head of the bed placed so that air from an open window blows upon the face of the patient, or with the adoption of some other method to insure pure, fresh air, one can rest assured that he has made a long step forward in the treatment of this very unpleasant and distressing disease. Tight clothing must be avoided. Attention next should be given to diet, since patients in nearly all cases eat too much, though in many instances the quality and character of the food consumed (as well as the quantity) are inclined to aggravate the disease by causing intestinal putrefaction and pathological fermentation.

Asthma,
Fasting for

The treatment should begin with a fast of three to ten days if the patient is below normal weight, from five to twenty or more days if possessed of average weight or above normal weight. A fast of five days or less should be broken with the Fast-Breaking Routine No. 1, and the milk diet should then be followed so long as there is a gradual increase in the weight, then discontinuing the diet by adopting Combination Milk Diet No. 1 or 6. After longer fasts the fast-breaking routine should be adapted to the length of the fast, though it is not absolutely necessary to adhere to the milk diet; Fast-Breaking Routine 2A or the alternative diet given under each routine may be followed.

After going through the diet advised in the appropriate fast-breaking routine it would be advisable to follow Salad Diet No. 6 for a week or more, gradually adding more sweet fruits, root vegetables, nuts, whole-grain cereals, and other wholesome carbohydrate foods that have agreed in the past. Limited Carbohydrate Diets 1, 2 and 3 are highly beneficial. A vitality-building routine adapted to the strength of the patient should be followed out carefully and religiously in order to build up strength. It is absolutely necessary to build up the vitality in order to be relieved of this unpleasant disease. Long walks are of great value, especially if deep breathing exercises are taken in conjunction with them. In fact, if the patient is fairly strong moderate running may be advised. These exercises enforce deep breathing and will help materially.

Asthma,
Diet in

Various exercises for the chest (the movements suggested in the treatment of tuberculosis for developing the chest and back muscles) may be followed with great benefit in the treatment of asthma. Some of the Back and Shoulder Movements chosen from 1 to 22 and Back and Neck Movements Nos. 38 to 42 are also of value, Special Manual Treatments 11 to 16 particularly. Be careful not to overwork the muscles. Whenever there is a distinct feeling of fatigue while taking any movement it is advisable immediately to discontinue that one.

Asthma,
Exercises for

The above constitutional treatment is absolutely essential in order to bring about any permanent benefit. Between attacks a localizing carbon-arc lamp directed to the upper chest and to the upper back for progressively increasing exposures as the parts become tanned is an excellent treatment, though a similar exposure to the rays of the warm sun is better, if it can be obtained.

During an acute attack hydrotherapeutic measures are of incalculable value. Hot chest and shoulder packs, repeated every half hour, or continuous heat by means of an electric light heater or infra-red generator, will have a sedative effect upon the nerves and a relaxing influence generally, giving the quickest and most satisfactory relief. Sometimes a hot-water bag applied to the chest will be sufficient.

Asthma,
Hydro-
therapy in

Medical men advise the dropping of a little rosin upon a hot stove, the drinking of quantities of strong hot black coffee, or the inhalation of chloroform or the smoke from certain herbs, such as cubebs, stramonium, etc.; but these measures, while giving temporary relief, are not dependable, and they interfere with the real cure by natural measures.

Hydrotherapy offers better results through the plentiful drinking of pure hot water. The inhalation of steam-laden air may be provided for by using an ordinary tea-kettle, attaching a funnel or cornucopia to the spout, and inhaling from the upper, wide

end of the cone. This is very effective in relieving spasms. Care should be used to avoid breathing the vapor too hot.

In many acute attacks relief will be found in a simple hot hand-bath or hot foot-bath, the former being the more convenient. The hands and forearms up to the elbows are immersed in hot water, ordinary pails being used for the purpose. An attack often may be aborted by this simple measure, used three or four times a day, for ten minutes on each occasion. Cold ablution always should follow the hot hand-bath. This hand-bath has a reflex influence upon the respiratory function. The hot full bath or a general vapor (steam) or general electric-light bath usually relieves more quickly than other treatments.

Asthma being primarily a nervous disorder, it is often relieved by prolonged application of cold compresses or ice-bags to the occiput or base of the head. Fomentations may or may not be applied to the chest at the same time. When using ice, a couple of folds of a wet towel should first be placed next the skin. The nerves may be quieted in many cases by a prolonged neutral bath in the evening, with complete immersion at a temperature of 95 to 98 degrees. Following this a hot abdominal pack will relax the diaphragm and also exert a favorable reflex action upon the bronchioles. Hot enemas often will accomplish this result and are to be especially recommended if there is any deficiency in the action of the kidneys.

When the hot chest and shoulder packs are given they should be followed by quick cold ablution of the chest, shoulders and back, using a wet towel or a sponge. This will restore the tonicity of the blood-vessels. In some cases a cold chest and shoulder pack, renewed every half hour, will prove satisfactory. While hot packs have a relaxing and sedative effect, usually to be desired in a severe paroxysm, the cold packs have a tonic effect, which is more to be desired when the attack is not extremely severe. But there must be prompt and complete reaction to the cold applications.

In such a case also a half-bath at 80 to 85 degrees, lasting ten minutes, will be of great value. During this bath, in which only the legs and the hips are immersed, the seated patient should be rubbed by attendants, while rubbing his own chest and arms. Two or three times during this half-bath slightly colder water should be poured down the spine for a few moments. This treatment cannot be given to one who is very weak or whose recuperative powers are limited, but it is of great advantage to one who can take it comfortably.

Concussion to the cervical vertebræ from the fourth to the seventh for six to eight minutes, with half-minute interruptions every minute, are excellent to relieve attacks and to aid in the

ultimate cure. The rapid sinusoidal current, with one electrode over the fourth and fifth cervical vertebræ and one over the sacrum is still better. The diathermia current through the chest likewise will relieve many attacks and aid in establishing a cure. Zone therapy may be used also—pulling the tongue vigorously outward, placing rubber bands or spring clothes pins on all fingers, or pressing the lip against the teeth.

In extremely severe, prolonged and resistant attacks the injection of five to fifteen minims of adrenalin chloride and an equal quantity of sterile water has been advised in bronchial asthma (never in cardiac asthma). It is said to bring instant relief of all symptoms and to have no bad after-effects. Being an internal secretion product, it is not totally foreign to the body.

Remember, however, that these measures, though invaluable for their palliative effect in relieving acute attacks, are not sufficient for all purposes. The constitutional treatment first outlined is vitally important and should be depended upon for the permanent cure. Usually the corrected diet to fit the individual is all that is necessary, though special attention should be given to the practice of relaxation.

ASTIGMATISM.—See *Sight, Disturbances of*.

ATAXIA.—A word generally used to indicate the loss of ability to control muscular movements; in other words, it is a loss of the power of muscular coordination. Such inability is a symptom of various acute and chronic nervous disorders. It is not infrequently the sign of some form of poisoning, notably alcoholism and syphilis.

Ataxia,
Causes and
Treatment

Ataxia may show itself in a variety of forms. It may be mild, as seen in the staggering gait of the semi-intoxicated man; or it may be profound, as in diseases of the nervous system, such as in general paresis, tumors of the cord and the brain, and in *Locomotor Ataxia* (which see).

The method advised for the treatment of locomotor ataxia may be followed with effective results in this complaint, regardless of its cause.

ATROPHY (*Wasting away*).—See *Muscular Atrophy*.

AUTOINTOXICATION (*Autotoxemia, Self-poisoning*).—A type of poisoning that the body may experience as a result of its own perverted metabolism, *i. e.* faulty tissue change or diseased function. This is the underlying cause of practically every disease to which the body is said to be "heir." It sometimes is called autotoxemia, but the better term is simply *toxemia*, which means poisons in the blood.

Autoin-
toxication,
Symptoms

Persons suffering from autointoxication usually feel weak, depressed, more or less melancholic; they have dull headache, flatulence, coated tongue, reduction or loss of appetite, and are

disinclined to exert themselves. Diabetes may be cited as a disease that bears a close relationship to autointoxication. It is produced by imperfect combustion and elimination.

Autointoxi-
cation, Treat-
ment

Treatment. In all ordinary cases the treatment for autointoxication depends altogether for results upon elimination and general constitutional upbuilding. The following routine, if adhered to, will be effective in practically every instance where the condition has not resulted in organic disease and provided no hidden abscess of teeth or glands exists. Only scientific studies can prove such developments of infection.

The treatment should be begun by complete Fast No. 2, from five to twenty days, depending upon the weight and strength of the patient. The fast should be broken by the proper fast-breaking routines. (See Limited Carbohydrate Diets 1, 2 and 3.) A milk diet thereafter is valuable in this complaint. If possible the patient should adhere to it for a considerable time, selecting Milk Diet No. 1, which is especially advisable if the patient is below normal weight. Then, too, this diet aids materially the functioning capacity of the alimentary canal, toning up the tissues and materially improving the assimilative powers.

Auto-
intoxication,
Diet in

If of normal weight or below before commencing the fast, the milk diet should be followed after the fast until the lost weight has been regained. After this Combination Milk Diet No. 3 or No. 8 should be taken for a week or two. Following this, Salad Diet No. 1 may be recommended for three, four or more days; after which Salad Diet No. 6 may be used indefinitely, gradually adding wholesome natural foods according to needs and taste. Considerable buttermilk, sumik, or Bulgarian or acidophilus milk should be taken regularly. Constipation must be vigorously avoided. Meats, white-flour products, commercial sugar, spices, condiments, gravies and rich foods must be eschewed, though meats over-balanced with fruits and green vegetables may be allowed later. The general vitality-building routine adapted to the strength of the patient should be followed each day.

Long walks are especially recommended as a valuable means of aiding the purifying processes of the body.

General exercises for all-round muscular development would materially add to the muscular strength and thereby increase the nervous energy. As the digestive organs look to the nervous system for the energy necessary to carry on their processes, the increase of nervous energy means greatly increased efficiency of the eliminative organs and of the blood-making organs throughout the entire body. General sun-baths are also of value.

Backache

BACKACHE.—Backache may be due to a heavy chill, strain, sprain, pelvic, kidney, liver or other disturbance. In many

instances the ache is due to a lesion in the spine, caused by a relaxed muscular condition, in which various muscles of the back, especially those under the shoulder-blades, are weak and allow crowding of the vertebræ, with pressure on the nerve fibers. In women, backache is caused frequently by weaknesses peculiar to the sex, especially displacements of the uterus. The weakened and relaxed ligaments are under an unnatural strain, directly or reflex, causing the pain in the back.

Prostatitis may cause lumbar or sacral pain or pain between the shoulders. Mild degrees of spinal curvature that may be unsuspected sometimes cause backache. It also exists frequently in hysteria and neurasthenia. Ulcer of the stomach, hepatic congestion, gallstones, hemorrhoids, cystitis, fecal accumulations, fatigue and lumbago are among other causes of backache.

**Backache,
Treatment**

Treatment. When backache is a symptom of some disease or the result of functional disorder attention should be given to the primary trouble. Displacements in women should be corrected by the methods advised elsewhere (See *Uterus, Displacements of*). In nearly all cases, treatment by means of the special exercise treatments described in Volume VI, especially those affecting the back, will be of great value. The application of hot or cold compresses at the same time or alternating will give relief in many cases. Muscular stiffness and lameness from unusual exertion will be relieved by hot wet packs or, especially, by infra-red or radiant heat therapy, or by vigorous scrubbing with a wet stiff-bristled brush. Osteopathy or other method of spinal manipulation, plus attention to diet and the bowels, certainly should be considered in any case that fails to respond to the simple home remedies described here.

**Balanitis,
Causes**

BALANITIS—Inflammation of the glans penis and of the mucous membrane of the foreskin. It is generally due simply to uncleanness (retained secretions beneath the foreskin), but may be due to herpes or venereal infection. In some cases phimosis is present.

Symptoms. The affection begins with an intense itching of the parts. This is soon followed by some swelling and redness and by the occurrence of a purulent discharge. There is sometimes a complicating swelling and contraction of the foreskin and may be also inflammation of the neighboring lymphatic glands. If it should persist this disease may in time lead to the habit of masturbation.

**Balanitis,
Treatment**

Treatment. In most cases all that will be necessary is regular bathing with soap and water, though in some cases mild antiseptics may be required; and in any case sunlight or ultra-violet irradiations would be of value. Cleanliness of the clothing, as well as bodily cleanliness and the general environment, is necessary. If phimosis

is present, circumcision may be necessary if the foreskin cannot be adequately dilated by traction. (See *Phimosis*.)

Baldness,
Causes

BALDNESS (*Alopecia*).—While in some cases baldness is of parasitic origin, it sometimes is due to a disturbance of the nervous system; but generally it is inherited, except in the strictly local form. In alopecia (which see) the possibility of the return of the hair depends upon removability of the cause.

Baldness,
Acute,
Causes

Baldness, *Acute*. Sudden loss of hair, except alopecia, generally results from fever, parasites or sudden and great fright. The loss of hair is generally partial, but sometimes is complete.

In cases due to fever the hair generally returns after the fever has subsided, especially if the general illness has been properly treated, though the nature of the hair often is changed, sometimes the color. The same applies to cases of nervous shock. One of the most prominent causes of gradual loss of hair is allowing perspiration to dry on the scalp. It seems to destroy hair roots in some cases. If parasites are present, strict cleanliness should be observed. As such infection is usually contracted in barber shops, barbers should wash their hands and tools each time after using them. The use of a parasiticide ointment may be necessary. Due attention should be given to proper general care of the hair and the scalp. (See *Beauty and Personality*, Vol. V.)

Baldness,
Chronic,
Treatment

Baldness, *Chronic*. *Treatment*. Cleanliness, scalp massage and ventilation are essential. The neck muscles must be free from tension and the head carried erect. There may be either much congestion and heat in the head, or there may be scalp anemia. The first calls for cooling applications, such as daily bathing with cold water or the use of a little vinegar in cold water, and the second for alternate hot and cold applications. Don't allow perspiration to dry on the scalp. Wash it out while damp. When your head perspires rather freely wash it with soap at least every three or four days.

It is best not to wear a hat except when absolutely necessary. Either do entirely without a hat, as is popular nowadays, or carry the hat in your hand most of the time, allowing the sun and the wind to vitalize the scalp. Ultra-violet irradiations should be used to the point of slight sunburn if the natural sunlight is not available. Free brushing and massage of the hair and the scalp and gentle pulling of the hair should be practiced daily as preventive measures. A general vitality-building routine suited to your strength should be adopted. Strictly natural foods should be used entirely, or at least largely. Autotoxemia should be avoided by proper foods and adequate elimination.

BANDAGING.—See section 5 of this volume.

BANDY LEGS.—See *Bowlegs*.

BARBER'S ITCH (*Sycosis: Eczema or Ringworm of the beard*).—A disease of the hairy parts of the body, the most common site being the hairy portions of the face, such as the upper lip, the cheeks, and the chin. It affects the hair-follicles and the tissues around them.

Symptoms. The early stage of the disease is papular, the papules changing to pustules which are pierced in the center by a hair. Pus forms around and in the sheath of the root of the hair. When the hair is extracted the root is found to be grayish and sausage-like. When numerous pustules are crowded together large inflammatory spots are formed, covered with scabs. These scabs eventually fall off, leaving either a scar or a clear surface. The disease is very chronic, and eczema frequently develops as a result of the irritation.

**Barber's Itch,
Symptoms**

Treatment. When it is apparent that each of the pustules is caused by a parasite, then by plucking out the hairs and observing strict cleanliness the disease should disappear. However, if the disease is not terminated in this manner the complaint must be treated as a constitutional condition. To be sure, local means, such as applying wet cloths to the affected part upon retiring, can be used to considerable advantage. Alternate hot and cold wet cloths are even more effective, allowing a cold wet cloth to remain over night. This will stimulate the local circulation and materially assist in the healing process. Strict cleanliness is necessary. One should secure natural or artificial sunlight irradiations daily or three times a week.

**Barber's
Itch,
Treatment**

A fast of two or three days or more, followed by the fast breaking routine adapted to the length of the fast, will be effective. Milk Diet Routine 1 thereafter is preferable, as it is inclined to cleanse the body and the skin of impurities of this nature more quickly than any other dietetic routine.

If it is difficult to follow the milk diet then follow the ordinary routine prescribed; or Salad Diets Nos. 5 or 6 for a few days would be especially good in this complaint. The main thought to keep in mind, however, when treating diseases of this kind is to be sure that the patient is not eating beyond his digestive capacity; if anything, he should try to eat somewhat less than he really needs. If he finds that he is not thoroughly assimilating his food, then the most satisfactory means of getting relief is to turn to the exclusive milk diet following a short fast. If this is impossible, adopt a milk and fruit diet, such as is prescribed in Nos. 1 and 3.

Electric treatment employing the x-ray, also steam or cabinet baths, Turkish baths (if the patient is not too light in weight) are especially recommended.

It is best to cut the hair short, and begin to shave when the

inflammation has subsided, continuing the shaving until cured.

BARLOW'S DISEASE.—See *Scurvy in Infancy*.

BARTHOLINITIS.—This is an inflammation of a vulvovaginal gland, known as the gland of Bartholin. It is due to the same causes as vaginitis (See *Vagina, Diseases of*).

Bartholin-
itis,
Symptoms
and Treat-
ment

Symptoms. The symptoms are pain, tenderness and a hard swelling of the glands of Bartholin. This swelling and redness may be found at the side of the vulvar opening upon the affected side. There may be a slight vaginal discharge. The pain often is throbbing in character. If the inflammation does not subside within a short time it frequently goes on to the formation of abscess of the gland, with fluctuation, a deep red or purplish color of the tissues, pointing and rupture, with discharge of pus.

Treatment. Same as for *Vaginitis*.

BASEDOW'S DISEASE.—See *Exophthalmic Goiter*.

Bedsore,
Causes and
Symptoms

BEDSORES (*Decubitus*).—Ulcers which appear over the bony prominences of any part of the body subjected to the continued pressure of lying in bed in the same position for a long period. However, it is only when there are changes in the blood-supply in the tissues immediately below the skin that bedsores develop. They occur especially upon the buttocks, spine and shoulder-blades. Unless great cleanliness be observed these sores are likely to appear in all cases of protracted illness, especially in diseases of the spinal cord. See also *Bedsore* under *Nursing*, Section 3.

Symptoms. An irritated spot like a blister appears, soon becoming livid, and a flat ulcer follows. This may become progressively deeper, spread rapidly, and eat to the bone. In spinal-cord disease, however, the sores may develop within twenty-four hours. They often become gangrenous with an offensive odor and a sloughing away of necrotic tissue.

Treatment. To avoid bed-sores there should be frequent change of position, smooth mattress and sheets, absolute cleanliness, rubbing with alcohol and dusting with talcum after drying. When the sores develop (as they will sometimes in spite of the best of care) they often can be treated with success by wet packs applied to the affected parts and around the adjacent parts of the body, though the more satisfactory method is to have a rubber air-cushion so arranged as to avoid irritating the sores. Rings of cotton or of oakum, covered with some soft material, can be used to great advantage in the treatment of bedsores. These rings may be placed beneath the patient in such manner that the part of the body upon which the sore has appeared presents over the hole in the ring, and is thus raised up and kept from contact with the sheets. As the sores are caused by pressure, the relief from this pressure will tend to aid in the cure of the sores. Unless the patient

Bedsore,
Treatment

can be suspended in a neutral tub bath for days the frequent cleansing, rubbing with alcohol, careful drying and application of talcum powder or boric acid powder are necessary. Ultra-violet irradiations are also of great value. Wrinkled sheets and too much covering should be avoided. Have sheets smooth and clean.

As a rule, however, if proper methods, such as we advocate, are adopted, the increase in the chemical cleanliness of the individual's blood and the general vitality of the patient are so marked that there is no need of remaining a bedridden invalid for long. As soon as one reaches a condition where he can avoid remaining in bed throughout the twenty-four hours of the day these sores will disappear.

BED-WETTING (*Nocturnal enuresis*).—A habit usually confined to children, resulting from debility of the nervous system, local or general. The presence of intestinal worms, indigestion, constipation, hyperacidity of the urine, phymosis, cystitis, diabetes, malformation, or paralysis also may produce it.

Treatment. Any discovered source of irritation should be removed. Regulate the diet, induce composure and insist upon evacuation of the bladder before retiring and at stated intervals, gradually extending the time between the intervals. It is well to avoid giving copious drinks at or near bed time. Often it is best to give little or no fluid after four P.M., being sure to provide plenty earlier in the day, and an evening meal that does not induce thirst. Exercise of muscles about trunk and abdomen is often helpful. Very greatly decrease the amount of food taken at this last meal. Especially impress upon the child the reason for this lessening of the amount of nourishment. In some cases it may be necessary to lessen the amount of food given until it becomes a hardship to the child. The object of this lessening the food is twofold: First, to lessen the inclination to urinate frequently, which is especially noticeable when overeating; second, to impress upon the child the necessity of getting up to urinate at the slightest warning. Furthermore, when a child goes to bed with a full stomach he always sleeps more soundly and, therefore, the warning would have to be more pronounced in order to awaken him. Avoid meat and eggs at night, and never give spices, condiments and salty foodstuffs; give no tea or coffee, but fruit-juices and milk instead. Massage in the region of the bladder and lower part of the back may be useful. See that the bowels are active and regular. A morning cold sitz-bath will be especially valuable for invigorating and improving the nerves and tone of the bladder.

In combination with the lessening of the food the child should be awakened at regular intervals during the night and requested to rise and relieve himself. In time the child will acquire the

Bed-
Wetting,
Treatment

Bed-
Wetting,
Habit-
Training in

habit of awakening of his own accord. A child troubled in this way should retire early, so he may be taken up to empty the bladder at the hour his elders retire. Often it is helpful to have the child awakened by an alarm clock some time during the night. Mental suggestion may be of further assistance. Exercise of the muscles about the trunk and the abdomen is often helpful, Self-Applied Manipulations Nos. 15 to 18 and 27 to 32, also Self-Applied Movements Nos. 6 and 7 and 12 to 15 being suggested. See also *Incontinence of Urine*.

**Belching,
Causes**

BELCHING.—Belching is the term applied to the spasmodic eructation of gas or air from the stomach. The gases expelled from the stomach usually are the product of abnormal fermentive processes in the stomach and are the premonitory warnings of future stomach disorder, if not the indication of present trouble in that organ. Steps must be taken to correct the cause. Attacks of belching are practically always due to overeating, especially of rich or spiced foods, to eating too rapidly, to improper mastication, to wrong combinations of foods, or to all of these errors. However, in a great many cases the main trouble is nervous dyspepsia, the belching often being mainly habit in some of these.

Sometimes air is swallowed with the food and this gives rise to belching, especially in the case of nursing infants. The eructations vary considerably in number and violence, sometimes being noiseless and without distress, but often causing much noise or giving rise to pain behind the lower tip of the breast-bone.

**Belching,
Treatment**

Treatment. The attacks usually can be readily overcome or controlled by sipping or drinking considerable amounts of hot water. This enables the offending gas or air to escape. Massage and pressure upon the stomach, and spinal stimulation by hot compresses or other heat, and vibration or spinal manipulation may be required in severe cases. In mild cases the belching usually stops of itself. After all, the direct cause is the presence of gas or air, so the belching serves the useful purpose of removing this.

**Belching,
Prevention**

In order to prevent future attacks it is necessary to correct eating habits, though if one has eaten wrongly for a long time, resulting in inflammation or irritation of the stomach, special treatment may be required, such as is described under the heading *Dyspepsia*. In nervous cases the vitality and nervous energy must be restored and direct efforts made to control the habit of belching. Salad Diet No. 5 is excellent for prolonged use.

**Beriberi,
Causes**

BERIBERI (*Kakké; Endemic neuritis*).—A disease which somewhat resembles a form of pernicious anemia combined with polyneuritis. It is due to a diet deficient in vitamin B, although general improper habits of living are no doubt contributing factors. Vitamin B is a certain substance necessary to proper nutrition. It is

found in seeds, the outer coating of cereal grains and in eggs, acid fruits, nuts, liver, brain, kidney, sweetbread, fish roe, and all green vegetables, especially tomatoes. This disease is found largely in all countries where polished rice is the principal article of food, although also in other places where a vitamin-deficient diet is used.

Symptoms. It resembles multiple neuritis. Impairment of motion and pain are prominent symptoms, attended by numbness, first in the lower extremities and later in other parts. In some cases there is atrophy as well as loss of power in the affected muscles. Dropsy is a prominent symptom in some forms of the disease.

There is a variety of other symptoms, including heart palpitation, heart murmurs, difficult breathing, and disturbances of the action of the organs in general.

Treatment. At first the patient should have bed rest. The question of diet is particularly important, inasmuch as improper food is unquestionably one of the prime general causes of the disease. Total Fast No. 1 if there is dropsy, otherwise Fast No. 2, for one or two days will be of value if followed by an exclusive milk diet or some form of milk and fruit diet. Unpasteurized milk should be used and one or two oranges or the equivalent of other citrus fruit daily, also rice bran or rice polishings or a "tea" made from brown rice, rice bran, wheat bran or whole-grain cereals. If the milk diet is not used, a diet of natural foods should be used, including unpolished rice and other whole-grain cereals, beans, peas, citrus fruits, salad, vegetables and milk.

Beriberi,
Treatment

Special Manual Treatments 1 to 10 should be used in connection with the hot spinal pack. Pain may be combatted by fomentations or other heat. When one is able to take exercise this would be of great value; otherwise any of the general movements listed under Special Exercise Movements (See Vol. VI) are recommended.

A warm neutral bath should be used if on a milk diet. A wet-sheet pack, vapor or other sweating baths should be used every day as a means of elimination, if they do not debilitate. Prolonged baths at slightly warm temperature are excellent. Special efforts should be taken to keep the bowels active, using enemas if necessary. Massage should be used after acute symptoms have subsided, and perhaps electric stimulation to any paralyzed muscles—faradic or sinusoidal current.

Beriberi,
Hydro-
therapy in

The classic method of treatment by which Dr. Donald McCaskey conquered the epidemic of beriberi in Cavite Province, Philippine Islands, in 1905, was by merely substituting the brown unpolished rice in the diet whereas the sufferers had previously been eating polished white rice.

BILIOUSNESS (*Torpid Liver*).—A form of autointoxication or self-poisoning due to defective intestinal function rather than to

Biliousness,
Causes

3174 BILIOUSNESS: TREATMENT

any affection of the liver itself. The ingestion of too much food or of food of too fatty a nature produces intestinal disturbance with thickening of the mucous membrane. This narrows the bile-duct and diminishes the amount of bile that may pass into the intestines. The inflammation, together with the decrease of bile, permits an excessive amount of intestinal fermentation and putrefaction.

Symptoms. Headache, nausea, vomiting, constipation, clay-colored stools, dark urine and slight jaundice develop in more severe forms, usually appearing first (sometimes only) in the whites of the eyes. The jaundice is produced by the absorption of bile into the blood-stream and the depositing of this bile in the tissues.

**Biliousness,
Treatment**

Treatment. As one of the principal causes of this disease is not only too much protein food but the lack of water, fruits and vegetables in the diet, in many instances simply adding these articles of food to the dietetic routine and avoiding too much meat and other rich foods will cause the complaint to disappear. Frequently the free use of lemons will bring quick and certain relief. Juicy fruits of all kinds (citrous fruits, apples, pears, peaches, etc.) will help to relieve the symptoms of this disorder. In treating the complaint one will do well to begin the routine by a fast of one to ten or more days.

In case the affection is debilitating and of long standing, a regularly prescribed routine will have to be given to secure results. A temporary and acute attack of biliousness, however, usually can be quickly relieved by drinking large quantities of hot water, especially when flavored with lemon juice. A part or all of this hot water may be advantageously ejected from the stomach immediately after it is introduced, putting the finger down the throat to accomplish this if necessary, though immediately after this the patient should take as much more hot water as he can drink. This second drink usually will be retained and will help in washing out the stomach and intestines. After this the patient should fast until he has a distinct appetite, and then confine his foods largely to juicy fruits and raw vegetables.

**Biliousness,
Chronic,
Treatment**

In the treatment of biliousness that has been chronic for a long period, the following suggestions are given: Complete Fast No. 4 for five days, followed by Fruit Diet No. 4 or No. 3 for three to seven days; then Salad Diet No. 6 for a week or more, after which adopt a general diet that previous experience indicates as likely to agree with the patient and bring about satisfactory results.

Heat over the liver area or the entire abdomen will prove valuable. This may be by fomentations, electric-light heater, infra-red generator, electric heating pad or, if necessary, the hot-water bottle. Massage of the entire abdomen and vibration by

hand or electric vibrator will prove beneficial. Bile salts have been used with benefit but should be used only as a temporary adjunct to other treatment. Properly given enemas and colonic irrigations are of great value in this condition. A general vitality-building routine adapted to the strength of the patient should be adhered to each day, if quick results are desired. Increase in the general muscular vigor will materially help to remedy the complaint.

BIRTHMARKS (*Nevus*).—A peculiar mark, blemish or discolored patch of the skin on the body at birth, due to pigmentation or to hyperplasia of the blood-vessels, either arteries, veins, or capillaries. They vary in color from red to blue or purple. Those of the form known as port-wine mark or "mother's mark" are flat and superficially situated and may grow rapidly after birth, though they sometimes disappear spontaneously. Inflammation of the area usually results in spontaneous cure.

**Birthmarks,
Causes**

The marks usually are located on the eyelids, lips, nose, forehead, cheeks, neck, or back, and vary in size from that of the head of a pin to that involving the greater part of the face. They sometimes extend as a broad blue stain over the greater portion of the face, causing a considerable degree of disfigurement. Pressure with the finger causes a blanching, but the vessels immediately fill up again as soon as the pressure is removed.

Treatment. Growing angiomas, by using an anesthetic, may be excised or cauterized or the vessels ligated satisfactorily, if the treatment is applied at an early stage. The simple nevus or usual form of birthmark is best treated by electrolysis or by dessication treatment by means of heat thrown out from a needle charged with an electric current.

**Birthmarks,
Treatment**

As a general thing it is hardly wise to try to interfere with birthmarks, inasmuch as they do no real harm. Since there is not necessarily any disorder in the blood or special weakness in the way of health, constitutional treatment will have no effect. Skin grafting may be resorted to in extreme cases. Ultra-violet light in severe doses may prove beneficial.

BITES.—See *Wounds and Stings* in Section 5 of this volume.

BLACK DEATH.—See *Plague, Bubonic*.

BLACKHEADS (*Comedones; Flesh-worms*).—Small swellings in the skin due to obstruction of the sebaceous or oil-glands. The superficial part of the exuding fatty matter dries and darkens, hence "blackhead." By pressing the skin on two sides of the blackhead between two finger-tips (but see below) the excess of fat which is clogging the gland can be expelled in the form of a whitish worm with a black "head". When present in excess blackheads lead to blotches, and sometimes to furuncles (boils) and to various eruptions on the skin.

**Blackheads,
Causes**

**Blackheads,
Treatment**

Treatment. If the general routine in the treatment of skin diseases is followed out in this complaint, combined with special local cleanliness, satisfactory results may be expected. Dry friction on the affected parts with a complexion brush will materially hasten the cure. A dry rough towel or the open hand may be used for friction, though the brush is much better. If a wet cloth or a face-mask is worn at night the activity of the eliminative processes will be materially hastened.

**Blackheads,
Local Treatment**

In stubborn cases it is well to precede this, before retiring, with alternate applications of hot and cold water, finally applying a cold cloth which is to remain until morning. If a thick lather is made from a good grade of soap and rubbed into the affected area until it disappears and the friction continued for a few moments, then the soap thoroughly removed with hot water and this whole treatment followed by a cold application, good results will follow. It is not advisable, as a regular practice, to use a watch-key or the finger-tips to press out the blackheads. The dry friction and greater cleanliness as mentioned, in nearly all cases will be effective, and will not cause the large unsightly pores that so often are noticeable when the tissues are bruised by forcing the blackheads from the skin with finger-tips or other methods. The bruising of the tissues through this pinching often causes large pimples and sometimes small boils to appear.

Constipation must be avoided, sweets, fats and rich foods reduced or avoided, considerable fluid taken and, preferably, cod-liver oil administered. Sunburn treatment is beneficial, but need not be extreme. (See *Acne*.)

**Black-
Water Fever,
Symptoms**

BLACK-WATER FEVER.—A severe type of fever, malarial in character, the exact cause of which is not known. It is variously ascribed to malaria, to the toxic action of quinine (every patient has or has had malaria) and to a specific infection distinct from malaria.

Symptoms. It is observed especially in the tropics and is characterized by fever ushered in by a severe chill, serious constitutional symptoms, severe and continuous vomiting of dark-green bile, jaundice, and a dark discoloration of the urine due to the sudden destruction of a large number of red blood-cells. Hence the name. Usually these symptoms are preceded by loss of appetite, malaise, pain in the back and limbs and severe mental depression. The disease may be quickly fatal, or it may last for a few days to a number of weeks, producing severe anemia and loss of strength, recovery eventually taking place, though relapses are common.

**Black-
Water Fever,
Treatment**

Treatment. In the treatment of this complaint, rest must be absolute during acute symptoms. Certainly quinine should not be substituted for natural curative measures.

If the patient is kept as nearly as possible out of doors, or at least given a free supply of fresh air, recovery will be materially hastened. The most important part of the daily treatment would be the wet-sheet pack. If the fever is very high this pack should be cold. If there is only one or two degrees of fever, the pack should be hot, though even when the pack is cold the patient should be quickly warmed, either with hot-water bottles and considerable covering or the free drinking of hot water, or both, in order to insure free perspiration during the pack. In using the hot pack, woolen blankets will be found frequently better than sheets.

This opening of the pores and the rapid elimination of impurities from the body by perspiration are especially important in remedying this complaint. When constipation is present it must be overcome.

The patient should be encouraged to drink very freely of water, which may be flavored with lemon juice if desired. No food of any kind should be given until the acute symptoms of the disease have abated, then the appropriate fast-breaking routine should be used. If the patient seems specially weak at the time when the wet-sheet pack is due, then, instead of giving the general body pack apply hot spinal packs, together with such manipulation as is described in Special Manual Treatments 1 to 10 daily (preferably in the evening).

The important features in the treatment of this disease are fresh air, fasting, free drinking of water, wet-sheet packs, the various methods for stimulating the spine and the external tissues and the cleansing of the bowels by means of enemata and colonic irrigations.

BLADDER, DISEASES OF.—*Inflammation of the bladder (Cystitis or Vesical Catarrh)* may be either acute or chronic. An *acute inflammation* of the bladder is generally an extension of inflammation of the urethra, vagina or the prostate gland. It may also result from the introduction of unclean catheters or other instruments or from taking certain drugs. Sometimes it results from a general toxemia through the irritation of the foreign matter being eliminated in the urine. Since the basic cause is always a toxemia of some kind, the same treatment applies in all cases.

Bladder,
Diseases

Although the diverse symptoms vary in nature and intensity at various stages, this condition generally begins with a sensation of tenderness in the region of the bladder. Frequent pains are felt at the neck of the bladder on urination. A frequent and sometimes continuous desire to urinate arises; and even after urination there may be spasmodic contraction of the bladder, showing great irritability of its lining. The urine is cloudy and is passed in small

Bladder,
Inflammation

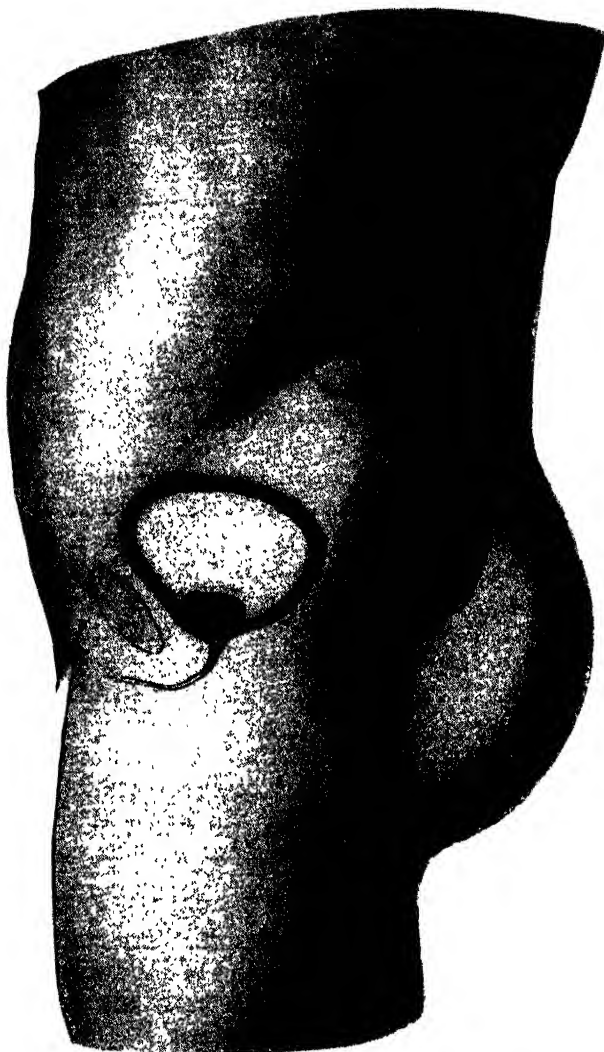


Diagram illustrating stone in the bladder (bladder distended). In this case the stone lies at the urethral outlet, obstructing free passage of urine.

Bladder Stones

The acid forms of stone are attended by oxalic, uric and other acid crystals in the urine, with a deposit of brick dust or white-powdery sediment.

Symptoms which precede and accompany the development of stone are tenderness in the region of the bladder and severe sharp stabbing pains immediately after urinating. Often the urine passed is tinged with blood, and the desire to urinate is frequent though only a small quantity is passed at a time. Sudden

quantities. In older and chronic cases this condition may go so far as to cause such irritability of the neck of the bladder that the urine cannot be voluntarily passed, but must be withdrawn with the aid of a catheter. In severe cases the urine resembles pus and the bladder becomes sacculated or unevenly distended, retaining a portion of the urine for such a length of time that ammoniacal decomposition ensues, increasing the irritation and trouble.

Stones in the Bladder (Vesical Calculi) are found in adults; sometimes in children, but are more often observed in men than in women. Their color, size and form vary, from the size of gravel to that of a small egg.

stoppage of the stream of urine during micturition sometimes occurs in persons suffering from stone in the bladder. This is due to the stone (when lying free in the bladder cavity) being carried by the escaping urine to and closing the entrance of the urethral canal, thus preventing, for the moment, the passage of urine.

Spasm of the Bladder.—A peculiar disturbance due to some irritation at the neck of the bladder. It sometimes follows excessive use of alcohol or the use of alcoholic drinks which have not been completely fermented. It often is present in cystitis or inflammation of the bladder. The chief symptom is an excessive or urgent desire to urinate, which persists after the bladder is empty. Attempts to pass urine result in the expulsion of only a few drops and call forth a severe burning pain.

Bladder,
Spasm of

Paralysis of the Bladder.—A condition usually accompanying diseases of the spinal cord. It also may occur as a gradual result of degeneration of the muscles of the bladder from chronic inflammatory processes, such as catarrh or enlargement of the prostate gland. The paralysis involves either the expulsive or sphincter muscles so the urine either cannot be retained in the bladder and is constantly dribbling, or it cannot be properly voided because the expulsive power is lost and retention results.

Bladder,
Paralysis of

Tumors in the Bladder. Growths in the bladder may be either malignant or benign. During the early stages of their formation these tumors are not distinguished by any clearly defined symptoms. Urinary difficulties, bleeding, and evidences of catarrh in many cases accompany the latter stages of the disorder.

Bladder,
Tumor of

Treatment. There is considerable uniformity in our methods of treating the various diseases of the bladder. Naturally, however, there is some difference in the treatment of the acute disorder and those of a chronic nature. At the first sign of *acute* distress in the bladder, complete Fast No. 3 should be instituted immediately and continued until all acute symptoms have subsided. The drinking of large quantities of water is very important, the water preferably to be hot. This increases the quantity of urine,



Bladder,
Acute Dis-
eases of,
Treatment

Biting the tongue by steady pressure of the teeth for eight or ten minutes for the relief of bladder pains.

but decreases its concentration so that it becomes a cleansing agent and non-irritating. There may be some increase in pain when the water-drinking is first started, but it should be continued nevertheless, since it will insure more prompt results. Relief from the pain can be obtained by use of the hot sitz-bath, taken for ten to thirty minutes once or twice a day. The hot sitz should be followed by a cold pack snugly covered with dry flannel and then an impervious covering, this being allowed to remain for two hours. (See "*T*" *Bandage*, under *Compresses*, in Vol. VI, Sec. 2.)

Bladder,
Acute Dis-
eases of,
Treatment

If inconvenient to take the sitz-bath, hot compresses may be applied over the area of the bladder, to be followed after half an hour or more by the cold pack, as already advised. Of further assistance in relieving the pain and reducing the inflammation is the hot enema or, even better, the hot rectal irrigation. Either is to be taken as hot as can be borne without causing tenesmus or cramping of the bladder, the enema to be retained for about five minutes or the irrigation to be continued for ten minutes or longer. Two enemas or irrigations may be taken on the first two days and one each day thereafter until the symptoms have subsided. The hot rectal irrigation is best because the temperature remains more nearly uniform during the treatment.

If there is difficulty in passing urine the hot sitz-bath usually will give relief. The hot ascending spray (See *Water and Health*, Vol. VI, Sec. 2) is excellent also, both for this condition and for the pain as well. In severe cases a catheter may need to be used, but strict aseptic precautions must be observed. Such difficulty should not prevent the patient from drinking the large quantities of hot water, as this will be necessary if the inflammation is to be relieved. Heat to the lumbar spine, diathermia, electric treatments through the bladder and often spinal manipulation are excellent for giving relief and the diathermia is valuable in the cure of simple cystitis.

After the acute symptoms have disappeared for a day or more the fast may be broken by the use of strained vegetable broth. This may be made of a variety of vegetables, green and root, but should be unseasoned. Four cups of this may be taken the first day or two at intervals of three hours. On the second or third day one cup every two hours may be taken. Then Milk Diet No. 1 may be adopted, and should be continued until there has been full recuperation. Acid fruits should not be used for at least three days after the symptoms disappear.

The milk diet especially is indicated, since it produces large quantities of dilute, non-irritating urine—a very essential condition if the cystitis is to be corrected. On the milk diet an alternate hot and cold sitz-bath should be taken daily, but the cold sitz should

be for a moment only, at first, its duration gradually lengthened to perhaps a minute or less. Exercise should be gradually resumed and attention given to all general health-building measures.

In the treatment of *chronic* disorders of the bladder it is essential first of all to select a general vitality-building routine within the limits of the strength of the patient and follow it out religiously each day. When there is a stone in the bladder it is especially essential that distilled water be used and that it be taken in liberal quantities. Indeed, it would be a good plan to drink a glass or more every hour during the day, for a while at least. If you cannot secure distilled water, then procure rain water that has been caught from clean roofs and preferably passed through a twelve-inch or thicker layer of clean sand before being stored away in clean vessels or vaults. Rain water, if it is kept clean, is nothing more than water that is distilled and aerated by nature; therefore, one might say that it is the purest of all waters. If neither of these is available, then use boiled water.

Bladder,
Chronic
Diseases of,
Treatment

It would indeed be advisable to adopt the plan of flushing by drinking large quantities of water, no matter what may be the nature of the difficulty with the bladder, for by flushing the organ with an extra quantity of liquid its functional processes usually will be performed more satisfactorily. In cases where there has been a diagnosis of stone in the bladder and where the free use of distilled water for a prolonged period, in connection with the diet hereafter suggested, does not seem to bring results, or if the stone is too large to be expelled, the operation of crushing the stone with an instrument for that purpose, to be performed only by a skilled surgeon, is to be recommended.

The daily routine for treating chronic diseases of the bladder should be as follows: complete Fast No. 3 for five to ten days, followed by Fast-Breaking Routine No. 1 or No. 2, depending upon the length of the fast. The exclusive milk diet is especially advisable in the treatment of chronic diseases of the bladder. Of course, where the exclusive milk diet is used there would be little use for much water, as the large quantity of milk taken would supply the body with all needed liquid.

If the patient's business is such that he cannot follow the exclusive milk diet, as prescribed in Milk Diet No. 1, then he may use Milk and Fruit Diet No. 2, changing to No. 4 whenever the taste might dictate; or one of the Combination Milk Diets may be used, or Salad Diet No. 5 or 6. In connection with the daily routine in the treatment of this disease, sitz-baths are of special importance. When alternating hot and cold sitz-baths can be taken, with two to three changes, much more rapid improvement may be expected—three minutes in the hot sitz-bath, one minute in the

cold, etc., cold to be used last. See detailed instructions for taking alternate sitz-baths under *Water and Health*, Vol. VI, Sec. 2.

Walking is an exercise of great value in the treatment of all these various diseases, except in the very acute forms and in case of stone in the bladder; so if one will walk practically to the limit of his strength each day, going to bed fairly fatigued from walking, he can rest assured that any disease of the bladder, regardless of its nature (except as mentioned), will be benefited thereby. Walking in some cases may apparently increase the inflammation in the beginning, but if persisted in the ultimate result usually will be advantageous. Walking is contraindicated in case of stone in the bladder if it causes an increase of pain, because of the damage to the bladder lining by the stone as it is caused to move about by the walking.

In *spasms of the bladder* hot and cold sitz-baths taken morning and evening, with two or three changes, will bring about relief, though if a cold hip pack be taken upon going to bed and allowed to remain all night, or until dry, it will furnish considerable relief.

Paralysis of the Bladder, when it has not continued for too long a period, sometimes can be remedied by the general routine advised for treating chronic diseases of the bladder. In this case hot wet towels applied to the spine, or alternate hot and cold spinal applications, will be of value, together with special treatment of the lower back (that is to say, the lumbar and dorsal regions) by means of back and shoulder, leg and hip movements in Volume VI.

Tumors of the bladder, whether fibroid or malignant in nature, often can be materially benefited by following the instructions given above. Fasting is particularly important in conditions of this character. It would be advisable, when suffering with such complaints, to continue the fasts as long as possible. Diathermia electrical treatment is of excellent value in most chronic bladder affections.

BLEEDING.—See *Hemorrhage*; also *First Aid in Accidents and Disease*, Sec. 5.

BLEEDING FROM THE NOSE.—See *Nosebleed* in alphabetical position; also *First Aid in Accidents and Disease*, Sec. 5.

**Blennor-
rhagia**

BLENNORRHAGIA.—An excessive blennorrhea (see immediately below).

Blennorhea

BLENNORHEA.—Any mucous discharge, especially from the urethra or the vagina. This is a term sometimes given to gonorrhea. See *Gonorrhea*; *Urethritis*; and *Vaginitis*, under *Vagina*, *Diseases of*.

Blepharitis

BLEPHARITIS (*Inflammation of the Eyelids*).—See *Eyelids*, *Diseases of*.

BLOOD DISEASES.—See *Acidity of the Blood*; *Anemia*; *Blood-poisoning*; *Hemophilia*; *Leukemia*; *Plethora*; *Syphilis*.

BLOOD-POISONING (*Septicemia*).—This is a general poisoning due to the blood becoming filled with large quantities of foreign material. It may be due to absorption from within, as in the case of the internal rupture of an abscess or when foreign material is retained in the uterus after an abortion, miscarriage or a difficult childbirth. It also results from the introduction of foreign material from without, as in the case of wounds and sometimes vaccination or other forms of inoculation, or from the use of drugs.

Symptoms. Characteristics are high temperature, extreme weakness, delirium or coma, rapid and soft pulse, dry and furred tongue, loss of appetite, constipation, repeated chills at irregular intervals, profuse sweating, flushed face, dry lips, hurried breathing. There may be remissions or intermissions in the temperature, or there may be a steady rise. There is rapid wasting away, the skin becomes pallid, and the conjunctiva may become slightly jaundiced. Transitory rashes may appear and frequently there are hemorrhages beneath the skin. The urine usually contains albumin. In very acute cases the symptoms are pronounced and resemble the severe stages of typhoid fever. Jaundice, hemorrhages and blood in the urine are commonly present. In some forms of acute blood-poisoning local abscesses develop, and there may be pleurisy, pericarditis or cerebral abscess. These latter cases are designated by the name of *Pyemia*. (See *Typhus Fever*.)

Blood-
Poisoning,
Symptoms

Treatment. Regardless of the source of the infection or the nature of the foreign material, the treatment should be designed to assist the eliminative organs in every way possible quickly to remove the offending material. The chief eliminative channels of the body are lungs, skin, kidneys and bowels, though the mucous membranes serve this function also. The first thing, therefore, is to supply the patient with an ample amount of fresh air. The more he can get the better, as oxygen in large amounts is essential. Next is to increase kidney action and to cleanse the alimentary tract, by the copious drinking of hot water and the use of a hot enema.

Blood-
Poisoning,
Treatment

Complete Fast No. 3 should be immediately instituted and continued until all fever is gone. Attention should be devoted to increasing skin activities, also. The most effective measure is the general cold wet-sheet pack, insuring such reaction as to assure copious perspiration. Since usually considerable fever is present, this treatment will be tolerated very well. In the beginning if there is not much fever the patient may be prepared for the cold pack by immersion in hot water or by using a hot-blanket pack for several minutes; or, if he is also weak, the hot-blanket pack should be used entirely instead of the cold-sheet pack. When the cold-sheet pack is used plenty of blankets should be employed, and possibly hot-water bottles also, in order to induce quick re-

Blood-
Poisoning,
Fasting in

action. The packs in either case should be continued until there has been free perspiration. After removal a quick sponge bath should be given.

It is important to avoid over-treating the patient. Each treatment should be followed by definite recuperation, as indicated by improvement in the patient's feeling, before another treatment is given. For instance, several hours should elapse between the administration of an enema and a pack. If on the first day after an enema and a pack have been given it appears that the patient is too weak to take another enema, this should not be given. The body is working hard to eliminate the poisons, so, while it should be assisted as much as possible, the nurse or attendant must remember that these treatments take bodily energy and that the body has not an unlimited amount to use. On any day that the patient seems to be particularly weak the general pack should be omitted and alternate hot and cold spinal compresses applied instead. This will help prevent too extreme weakness. The hot spinal compress alone will assist in overcoming insomnia.

After the temperature has been normal for a day the fast may be broken. Its length will indicate the Fast-Breaking Routine to be used, but this should be followed by Milk Diet No. 1. The milk diet is especially valuable, as this maintains adequate elimination along with perfect nutrition. It has been found especially valuable in cases of blood-poisoning following childbirth.

The rest, which is always indicated where there is fever, should be continued for several days after starting the milk diet, as the patient will be considerably reduced in energy and will need to recuperate before taking up any muscular activities. Milk and Fruit Diet No. 1 may be followed for several days after changing from the strict milk diet, and this may be followed in turn by Salad Diet No. 6, gradually adding all wholesome foods. Vitality-Building Routine No. 3 may then be adopted, and later No. 2 and still later No. 1.

BLOOD PRESSURE.—The normal blood pressure ranges from 115 to 135 mm. of mercury, measured on a special apparatus, called a sphygmomanometer, with a column of mercury or a dial. It usually is figured at 90 to 100 points above the age of the person, in adults; but this will not hold above the age of forty. Men normally have a blood pressure five points above that of women of the same age. (See *Blood Pressure* in Section 1.)

High Blood Pressure.—A blood pressure is considered seriously high when it is over 175, depending upon the condition of the blood-vessels. A high blood pressure is a symptom of arteriosclerosis, chronic interstitial nephritis, nervous tension, approaching apoplexy, uremia, eclampsia, and other toxic conditions.

Blood-
Poisoning,
Over-Treat-
ment in

Blood
Pressure,
Normal

Blood
Pressure,
High

To reduce a high blood pressure without removing so far as possible the cause is a dangerous procedure; as, for instance, in nephritis a high pressure is necessary in order that a sufficient amount of blood pass through the diseased kidneys, so to reduce such a pressure without detoxifying the body might result seriously. Therefore, to reduce a high blood pressure scientifically it is necessary to go through a course of elimination.

Treatment. A few days' fast or a short period on a fruit-juice diet (such as Fruit Diet No. 1) with a daily enema, after which a period on the exclusive milk diet, or a milk and fruit diet, has been found the best dietary routine. In case of arteriosclerosis, not over four quarts of milk should be taken daily. Salad Diet No. 5 or No. 6 for two or three weeks usually will be beneficial, without nuts for the first week or so. Warm or tepid baths are indicated, to be followed by good skin friction except in very pronounced arteriosclerosis. In severe cases, however, absolute rest in bed often is necessary.

Blood
Pressure,
High, Treat-
ment

The electric-light bath is beneficial, stimulating the skin vessels. Autocondensation is an excellent electrotherapy measure in these cases, but should not be relied upon solely. Combined with the general treatment given here, it will bring the blood pressure to safety limits within a short time. The best diet for regular use consists of the fruits, milk, vegetables, nuts, and a very few cereals. Meat, eggs and salt should be prohibited, though egg yolks are permissible. Tea, coffee, tobacco, alcohol and sexual excesses must be avoided, so likewise worry or pronounced mental or physical activity, though graduated, especially walking, exercise is beneficial in most cases. Massage to the chest, spine and extremities is extremely useful when exercise cannot be taken.

Low Blood Pressure.—A low blood pressure may signify one of several conditions, though a slightly lowered pressure usually is given no consideration. Low pressure may mean diminished reserve power of the circulation; heart weakness, with arteriosclerosis, chronic nephritis or arterial spasm; exhaustion of the adrenal glands by severe toxemias and infections (as after typhoid fever, influenza, and pneumonia and in tuberculosis and diabetes mellitus); chronic tobacco-poisoning; operations (from the anesthesia and shock); hemorrhage; and other conditions. It usually is present in all forms of anemia.

Blood
Pressure,
Low,
Treatment

Treatment. In treating this condition it is necessary, when possible, to discover and remove the cause. If due to chronic degeneration of the heart muscle it is very necessary that there be rest, though in some cases walking about may be permitted if done slowly and if no stairs are mounted. In most other cases graduated exercises may be permitted, though more than a very

slight fatigue must not be allowed. Self-Applied Exercise Movements 1 to 6 can usually be employed to advantage. Tonic baths may be given, but it is necessary to adapt them to the patient's reactive powers. The needle bath and light percussion are valuable. Massage is valuable in all cases, whether or not exercise is taken.

These cases usually do well when given large quantities of fruits and green vegetables, especially the former. Fasting is not advised unless for a day or two only. Instead, fruit diets should be prescribed—allowing all the fresh fruits at each of the three regular meal hours that the patient desires, preferably followed by a strict milk diet. Constipation must be avoided, but laxatives should not be given. Meats, by some considered essential in this condition, are not at all necessary and many patients do better without any meat at all.

The Oudin high-frequency electricity current applied to the spinal region by means of a large body electrode will have favorable effect in some cases. So also will rectal dilation. A very excellent adjunctive measure in many cases is said to be adrenal substance in powdered (tablet or capsule) form or adrenal extract, to provide what the individual's own adrenal glands temporarily cannot supply in adequate amounts—the tonic hormone.

BLUISH DISCOLORATION.—See *Cyanosis*.

Boils,
Causes

BOILS (*Furuncles*).—A boil is a circumscribed area of inflammation accompanied by the formation of pus which finally collects in a hardened mass in the center called the core. This must be thrown off before healing can take place. If suppuration and external discharge do not occur it is called a blind boil. A boil is supposed to be due to an infection of a sebaceous gland or hair-follicle. It is well known, however, that boils are likely to occur in cases of diabetes and nephritis, also to appear in "crops" and to recur at frequent intervals.

These facts show plainly that the fundamental cause of boils is an acute accumulation of toxins in the body. The body produces the boils in an effort to eliminate these toxins. Overeating, especially of rich, sweet, or fatty food is likely to produce boils. Of course, external uncleanness may favor their appearance; but a person who keeps perfectly clean outside may develop boils if he does not keep clean inside by proper diet and other right habits of living.

Boils,
Symptoms

Symptoms. In its early stages a boil appears as a hard, reddened, slight elevation in the skin. This becomes larger and larger, the redness frequently spreading to the tissues about it. As the pus forms beneath the skin the redness gives way to a purplish or bluish discoloration and a pointing or "coming to a head" of the

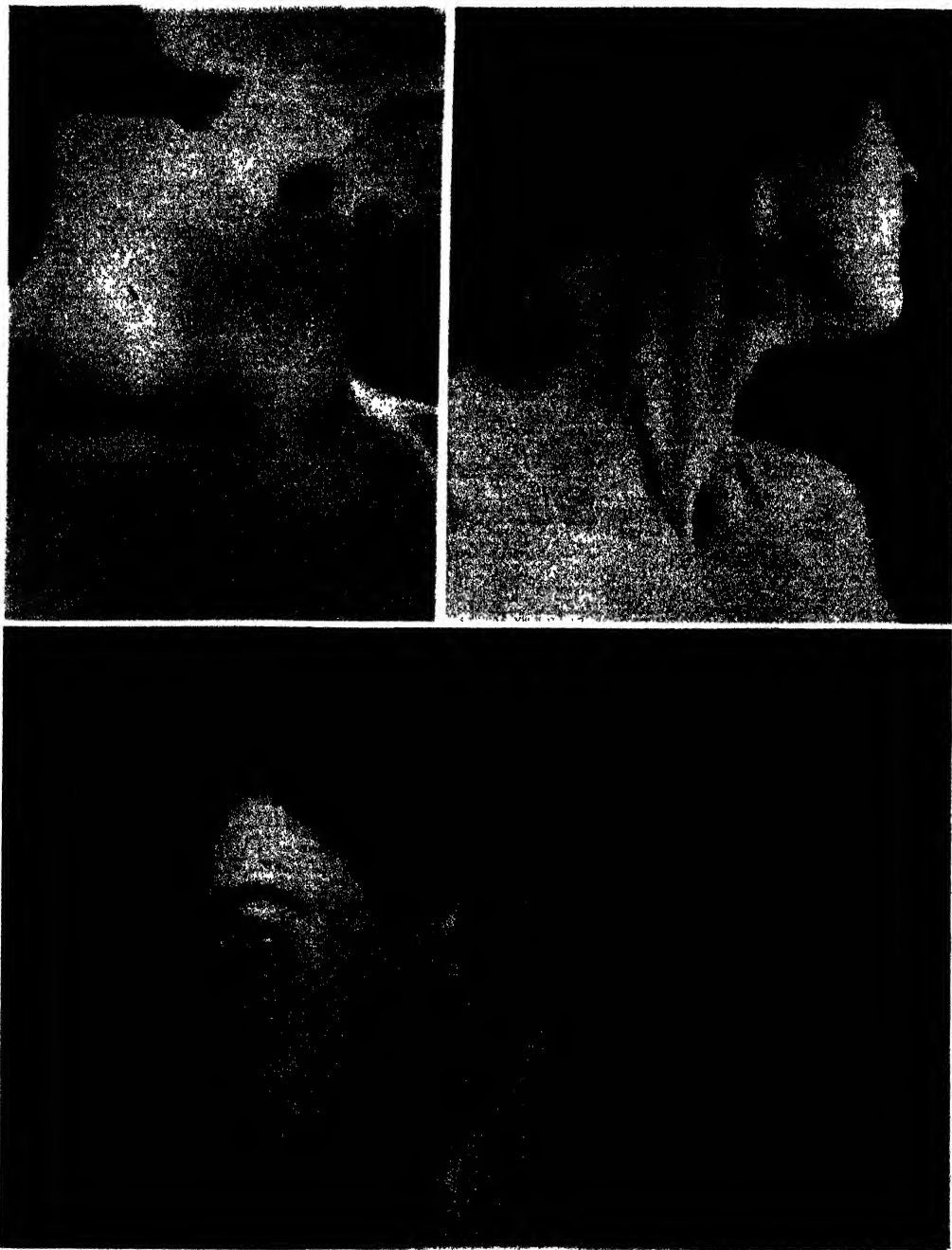


PLATE 94. The boil (figure at left at top) usually has but one opening for discharge of pus.
The carbuncle (figure at right at top) generally has many openings and involves the deeper tissues.
In acne (bottom figure) the pustules are usually numerous.

boil. If left to itself the boil will open at the apex of the point, discharging pus at first and finally a small mass of necrotic tissue called the "core." After this has been discharged the boil rapidly begins to heal. Sometimes a boil can be absorbed before it arrives at the stage of suppuration. In some cases of boils the patient will complain of headache, general malaise and slight feverishness.

Boils,
Treatment

Treatment. Boils are treated much like abscesses, as they are really small surface abscesses. If there is only one boil or if there are several well developed before treatment is started, or if the patient is generally run-down, the elimination treatment is indicated, that is, a short fast or fruit diet followed by the milk diet. Generally it is well to take for several days nothing but orange juice and water—six or eight oranges a day with at least three quarts of water and using an enema daily. This is best followed by Milk Diet No. 1 until all the boils have ruptured, discharged their cores, and healed. As an alternative diet a raw fruit and vegetable diet may be used. Walking is permitted, and deep breathing of fresh air is important.

If there are several boils, it is well to give several hot-blanket packs, allowing a day's rest between packs. Usually no local treatment is required, but hot boric-acid compresses or heat from a therapeutic electric-light bulb may be employed if it seems necessary to assist in bringing the boils to a head. Only when the boil happens to occur in an area where the skin is very dense and thick will lancing be necessary. Even in these cases the use of concentrated sunlight may make lancing unnecessary.

Once a boil has opened strict cleanliness must be observed until it has thoroughly healed. It should be exposed to the air and sunlight as much as possible, but should be covered with a sterile bandage when necessary to protect it from friction of clothing and dirt in the environment. Pressure should never be applied to bring out pus, as this bruises the tissues and delays healing.

If one has been subject to successive crops of boils, it is well to employ complete Fast No. 2 for about a week in order thoroughly to cleanse the blood-stream. If the treatment just described has been used, the fast should be taken after the milk diet when all the boils have healed. It is followed again by the milk diet until full recuperation has taken place. Then a strictly natural solid food diet is to be used, giving special attention to raw food, but carefully avoiding overeating. Vitality-Building Routine No. 1 should be followed persistently.

Boils,
Diet for

If a boil or several boils are just starting, the fast may be taken immediately and continued until the blood has been cleansed, as indicated by the subsidence of the local areas of inflammation. Usually from a week to ten days will be required. The appropriate

fast-breaking routine is then used, following with Milk Diet No. 3 until full recuperation has taken place. If the patient is overweight a limited solid-food diet may be used instead of the milk, employing mostly fruits and vegetables, especially raw, with some form of sour milk. This diet may be used in any case if milk cannot be obtained or if the milk diet cannot be followed for some other reason.

If no milk can be obtained, fruit, vegetables and nuts may be used. If the patient is underweight moderate amounts of whole-grain products may be added. Vitality-Building Routine No. 1 may be employed as directed above. Sunlight or ultra-violet light used locally to a fairly pronounced sunburn is very beneficial. A wet-sheet pack, vapor cabinet or electric-light cabinet bath, or some other method of arousing profuse perspiration would be advisable in acute stages.

If the boils are due to diabetes or nephritis the chief treatment should be directed toward the underlying disease. Hot compresses or other local treatment for the boils may be employed as necessary in each individual case.

BONE, BREAKS, DISLOCATIONS AND FRACTURES OF.—See *First Aid in Accidents and Disease*, Sec. 5.

BONE, DISEASES OF.—Only the important bone diseases require consideration here. In those varieties not mentioned, constitutional treatment may be given very much the same as for those herein discussed.

Bone
Diseases

Bones are necessarily hard because they must maintain the form of the body as well as to act as supporting structures. As their nutrition is very good they are less subject to disease than any other tissues of the body. In the absence of proper elements of nutrition in the diet, however, they will suffer from lack of development and repair when injured, the same as other tissues. This is especially true if the organic salts, particularly calcium, are not supplied in sufficient amounts to maintain their hardness. In many bone diseases it is undoubtedly the absence of these salts which retards recovery. In old age the bones may become atrophied by absorption of the hard substance because of lack of use. The same thing may occur after fractures.

Bone is constantly being built up during health by means of the *osteoblasts* or bone-forming cells; but when it becomes diseased the *osteoclasts* or bone-destroyers are in excess, so the degenerative process often is rapid.

Because of its hardness and density bone tissue cannot swell, therefore inflammation of bone is characterized by intense pain, though the inflammation itself is similar to that of any other tissue. The blood supply is more readily cut off, thus more easily producing

necrosis or death of the tissues. The varieties of inflammation of bone are given under *Bones, Inflammation of*.

Tuberculosis of Bone (*Tuberculous osteomyelitis*). (See *Spine, Diseases of*, page 3689, Volume VIII.) This is an inflammation of a tuberculous nature. The first indication is extreme pain, then wasting or atrophy of the muscles above and below the seat of the disease; there are sometimes spasm and rigidity of the muscles. The bones adjacent to the joints of hip, knee, ankle, elbow and wrist are most commonly affected.

Bone Tuberculosis

Atrophy of the Bone is a process of wasting which in time becomes chronic and chiefly affects aged persons.

Osteomalacia is a rare disease characterized by progressive softening of the bone tissue and the resulting deformity. It is due to deficient nutrition and is mostly seen among pregnant women who have borne many children or who have nursed many children for long periods on an inadequate or devitalizing diet. Deficiency of calcium salts and vitamins is the direct cause.

Osteomalacia

In addition to these varieties, *Rickets* (or *Rachitis*) is an important affection of ill-nourished childhood. (See *Rickets*.)

Caries is the result of inflammatory tuberculosis of bone, resulting eventually in softening of the bone substance. It is found chiefly in *Pott's Disease* (*Vertebral caries*). (See *Spine, Diseases of*.)

Curvature of the Spine. (See *Spine, Diseases of*.)

Treatment. Relief in all these diseases of the bone depends entirely upon improved nutrition and the purification of the blood-stream. For stimulating the local circulation in the affected region and for allaying pain, infra-red ray irradiation, radiant heat, diathermia (high-frequency electricity) or fomentations are recommended.

Bone Diseases, Treatment

The most important factors of treatment, however, must be of a constitutional nature. As a means of building up rapidly, Complete Fast No. 2 in the very beginning of the treatment is recommended. This may be of two or three days' duration, or perhaps for ten days or two weeks, depending upon the weight and strength of the patient.

Following this, Milk Diet No. 7 is recommended because of the superior nourishing qualities of this diet. Milk contains all of the vitamins, lime salts and other elements necessary for the building up of bone tissue. After regaining all of the lost weight, variations of the milk diet may be adopted, such as Milk and Fruit Diet Nos. 1 and 3 or some of the Combination Milk Diets such as Nos. 2, 7 or 13. After discontinuing all these diets the use of a large percentage of uncooked foods will be of great advantage. Cod-liver oil will be a valuable addition to the diet.

Hot spinal packs may be recommended as given in Special

Manual Treatments No. 11 to 16 if the patient is strong enough; otherwise choose from Treatments 1 and 10. Omit these, however, in tuberculosis of the spinal bones. Given three times a week a wet-sheet pack will be valuable for its remarkable eliminative qualities. At all times, except when on a milk diet, the free drinking of water should be encouraged, and activity of the bowels should be maintained, even if enemas are required for the purpose. However, the use of bran or mineral oil or both regularly with meals (or of bran with the milk diet) should make the enema unnecessary. An outdoor life or at least a supply of fresh air equivalent to that of out of doors is essential. Graduated sun-baths or sun-lamp irradiations should be taken daily or at least three times a week.

Tuberculosis of Bone should have the same constitutional treatment as inflammation of the bone, except that cold applications, instead of hot, may be made to the region affected. In some cases alternate hot and cold packs are to be preferred, depending upon the relative comfort derived from these different applications. A patient suffering from tuberculosis of the bone should live out of doors if possible and follow in general the treatment elsewhere outlined for tuberculosis of the lungs (which see). Sea voyages or life at the seashore is especially recommended for cases of this kind. This affection particularly needs sunlight, either natural or artificial, and hundreds of hours of it.

Atrophy of the Bone and *Osteomalacia* naturally require the same line of treatment, inasmuch as they are both due to defective nutrition. The woman who is suffering from the latter disease may well avoid the strain of childbirth, at least for a time; but even in such cases the amelioration of her troubles will be produced by improved health, greater constitutional vigor and more satisfactory nutrition.

See also *Joints, Diseases of; Ankylosis*. Also *Fractures* under *First Aid in Accidents and Disease*, Sec. 5.

Bones, Inflammation of. Inflammation involving bone structures may affect the periosteum, *periostitis*; the bone itself, *osteitis*; or the medullary portion of the bone, in which last case it is called *myelitis*. An acute inflammation of the bone practically always takes the form of an *osteomyelitis*. It rarely occurs except as a result of injury or infection. If these causes are not present it is due to a general toxemia. In either case the treatment should be the same.

Symptoms.—The symptoms of *osteitis* vary according to the intensity of the inflammation. The most marked symptom is pain of a deep-seated or boring character, subject to remissions and exacerbations. It usually is worse at night, and is always increased

Bone
Tuberculosis,
Treatment

Bones,
Inflamma-
tion

Bone Inflam-
mation,
Symptoms

by exercise or movement. There may be slight redness of the skin covering the bone, but occasionally there is paleness, owing to the presence of the swelling or edema, which presses out the blood.

The symptoms of *periostitis* are somewhat similar to those of osteitis. There is severe throbbing or bursting pain greatly increased by pressure over the part or by tapping it with the finger. The pain is worse at night. Swelling and some redness of the skin appear over the inflamed part. If an abscess forms, as it sometimes does, the swelling increases, the skin becomes very red, and the pain may be agonizing. Should the abscess not discharge spontaneously an incision through the periosteum to the bone may be necessary.

Periostitis

The symptoms of *osteomyelitis* in its simple form (which is generally the result of injury or of fracture) may be of comparatively slight clinical importance, and may give more or less vague symptoms. In its more severe form it generally is septic and is a very grave disease. The onset of this form is marked by a chill, high fever and severe prostration, sometimes delirium. Very severe pain radiates in various directions from the part, also there are tenderness on pressure, duskiness of the skin and some diffuse swelling, rapidly followed by abscess formation. Symptoms of general blood-poisoning are likely to supervene unless radical treatment is undertaken at once. Portions of the bone are likely to die or necrose and to be discharged with the pus.

Osteomyelitis

Treatment. Since an acute inflammation of the bone is usually associated with general symptoms, such as chills and fever, the first thing necessary is to cleanse the alimentary tract by the fast, the free drinking of water and the use of enemas repeated as judgment dictates. If the patient is chilly the enema should be given hot, otherwise tepid or cool.

**Bone
Diseases,
Treatment**

Of course, no food should be taken until the symptoms have subsided. Complete Fast No. 3 generally is to be preferred. The length of the fast will depend upon how soon the inflammation subsides. Usually from five to ten days will be required. Fast-Breaking Routine No. 2 should then be used, followed by Milk Diet No. 1. Milk is especially valuable for repairing the damage caused by inflammation of the bone because it contains liberal quantities of calcium and phosphorus, both of which are necessary for the formation of bone-cells. The milk diet, therefore, should be continued until a normal condition has been restored.

If there has been an injury, the wound should be kept strictly clean and local applications of sunlight should be employed. In the absence of sunlight, carbon-arc irradiation will be valuable as it supplies both the infra-red and the ultra-violet rays. After

fever has subsided the irradiations may be made general. Whether or not there has been an injury, local cold packs will be found helpful, when allowed to remain for about two hours.

If there is much pain or if the patient is chilly, relief may be secured from the application of hot packs, maintaining heat by the use of a hot-water bottle. Whichever pack is used, there should be a brief sponging with cool water at the end of the treatment. If the symptoms are severe, general cold-sheet packs or a prolonged neutral bath when there is high fever, or a full hot-blanket pack when there is no fever may be employed instead of the packs. Rest and fresh air are important during the fever stage.

When these measures are promptly instituted abscess formation may be prevented. Abscesses occur more often in the chronic bone inflammation. If they do occur, however, they will be taken care of by the treatment mentioned, especially the local packs and the sunlight or carbon-arc irradiation.

BOWELS, INFLAMMATION OF.—See *Enteritis*; and *Intestines, Diseases of*.

Bowlegs or Bandy-Legs, Causes and Treatment

BOWLEGS OR BANDY-LEGS.—Legs which are bent in an outward curve. In small children bowlegs often will straighten when the usual cause of the condition, rickets, is properly treated. Most babies

are born with some degree of bowleg, because of the position occupied in the mother's uterus. But when properly fed and given at least some sunlight the majority will outgrow it. Pronounced hereditary tendency in this direction may prevent complete correction even with the best diet and hygienic care. (See *Rickets*.)

Treatment. If one has passed early childhood (four or five years of age) there is small likelihood of this condition being corrected. Self-Applied Knee Manipulation No. 23 for bending the joint inward, may be of some benefit in an occasional case. (See Volume VI.) It would be well in many, if not all cases, to take this exercise several times a day, performing it until there is a feeling of fatigue from the effort. Every movement, however, which will bring the joint into a more normal position will be of value. Furthermore, any



PHOTOGRAPH WIDE WORLD

Bowlegs treated in early childhood respond to diet to correct diseased bone-conditions, supplemented by suitable exercise, manipulative or mechanical treatment, and sunlight.

exercises that will add to the amount of movement of the joint will be helpful.

Various movements illustrated in Volume VI under the head of Leg and Foot Movements given by an operator, would be of value. It is an easy matter for the individual to select these, as any movements, and especially those that induce a more natural position, will increase the action of the joint. This applies also to any movements that strengthen the inner and outer structures of the extremities.

When the "bow" in the leg is found in the middle of the calf or in the middle of the upper leg one could hardly expect results of importance, though development of the muscles of these regions will make the bows less apparent. But when the bones of the upper leg and the calf are apparently straight and the "bow" is due to a defect in the knee-joint, then a material change for the better may be counted upon if one will persistently apply the treatment.

Naturally, even when there is no constitutional defect, any effort made with a view of purifying the blood and building up the general vitality will be of some value; so by selecting a suitable dietetic and exercise routine for this purpose and following it out persistently one can accomplish a more



**Bowlegs or
Bandy-Legs,
Special
Exercises
for**

For Bowlegs. A helpful exercise is performed with arms overhead, bringing the heels high from floor, rising on toes, bringing knees close together.

rapid improvement. In infancy and early childhood the condition may be corrected by providing cod-liver oil and sun-baths, especially when massage and a diet of raw foods including milk are used in addition. In pronounced cases it is best that special braces be provided for use either during the night, during attempts at walking, or both.

BRAIN, APOPLEXY OF.—See *Apoplexy*.

Brain
Diseases

BRAIN, DISEASES OF.—In addition to meningitis, apoplexy and paresis or softening of the brain (see below) other affections of this organ may be briefly discussed. Among them are the several aphasias, also tumors, abscesses, hydrocephalus, hemorrhage, thrombosis, embolism and encephalitis. Some of these conditions are discussed in alphabetical position in this volume.

Acute diseases of the brain include apoplexy and inflammation, though, except when due to injury, long before apoplexy appears suddenly, causes may have been operating to make this condition possible. That is, the underlying conditions are chronic. Inflammation may affect the membrane covering the brain (the meninges), in which case it is known as *meningitis*; or the brain itself (the encephalon), in which case it is called *encephalitis*. These two diseases, as well as apoplexy, will be found fully discussed in their alphabetical positions.

Brain
Diseases,
Symptoms

Symptoms. In general, the symptoms of brain diseases are those of either cerebral anemia or congestion. In *cerebral anemia* the patient becomes pale, dizzy and subject to fainting spells, and the extremities are cold. In *cerebral congestion* the picture is almost



Bowlegs. Recline on the right side with the feet placed upon a chair, one directly on top of the other. Now lift the body on the arms, supporting it as in the illustration. From this position, raise and lower the hips 5 to 10 times. Repeat on the left side.

opposite. The face becomes flushed, sometimes dark-red, the arteries of the temples prominent and vertigo is present. In acute inflammation of the brain (*encephalitis*) the brain substance is inflamed. The principal symptoms are fever, vomiting and convulsions, with varying degrees and extent of paralysis. The chief conditions giving rise to these affections are excesses in eating and drinking and constipation, sometimes with excessive degrees of mental or physical labor.

Tumors of the brain are of considerable importance and of several different forms: either hard or soft and either benign or malignant. They may be solid or they may contain fluids (cystic tumors). Tuberculous tumors may be found in children and young adults, other tumors usually only in those who have reached middle life and oftener in men than in women. Some, such as cancer, develop rapidly and others grow very slowly and insidiously.

Brain
Tumors

It is difficult to diagnose brain tumor in its early stages. Indistinct, dull headache usually is one of the earliest signs. Other disturbances appear only after weeks or months and they vary according to the location and size of the tumor. Usual symptoms are disturbances of vision, dizziness, staggering gait, paralysis or weakness of various limbs, loss of memory and unconsciousness. The headache is very persistent and usually severe. Often there is vomiting, but without nausea. The patient is likely to become very emotional and there is mental dullness. In the case of some tumors situated near the cortex or surface of the brain there may be convulsions. Both the pulse and the speech are slow.

Treatment. For treatment of the acute brain diseases mentioned (apoplexy, encephalitis, and meningitis), see under these diseases alphabetically placed. For brain compression and brain concussion, see *First Aid in Accidents and Disease*, Sec. 5. For treatment of tumors see *Tumors*, but also below.

Brain Dis-
eases, Treat-
ment of
Chronic

All chronic brain diseases must be treated by constitutional methods. One can expect results only through changing the condition of the blood supply. If a disease of the brain occur in which there is an insufficient supply of blood to the head, hot packs at the nape of the neck and along the entire spine would be inclined to bring improvement in this respect. Or short cold applications may be given to the head; or prolonged cold douches to the spine, legs and feet; or the continuous warm compress to the throat. In some cases of severe anemia rest in bed lying down should be prescribed. Remember, however, that when there is no other apparent cause for such symptoms, the dizziness and fainting spells which may accompany this condition often are due to the lack of a supply of fresh, pure air. In case of fainting, follow sug-

gestions given elsewhere for treatment. (See *Fainting*, page 3342, Volume VIII; *First Aid in Accidents and Disease*, Sec. 5.)

When there is congestion, the treatment for bringing relief should be a prolonged application of the cold head compress or very cold cloths to the neck, head face and spine. Short very hot applications to the back of the head or the upper neck, or to the top of the head and the face, are also very efficient. Because of its reflex influence, often a cold abdominal pack may be used to advantage to check this congestion. This also would materially stimulate the activities of all the important organs in the abdominal region, often bringing satisfactory results in a very short time. Bathing the feet in hot water is a good way to relieve cerebral congestion, especially in conjunction with cold applications to the head and the neck. The cold foot-bath, if of very short duration, is also beneficial. The cold sitz-bath, with cold turban and hot foot-bath, is excellent. The leg pack also may be used with satisfactory results.

As a constitutional treatment for brain diseases, other than apoplexy, in which there are distinct symptoms of congestion, the following general treatment is suggested: Complete Fast No. 2 for six to ten days. After breaking the fast in accordance with Fast-Breaking Routine No. 2 for two days, then follow with Salad Diet No. 6 for two days; after which Milk and Fruit Diet No. 1 may be used for five to seven days. Following this any routine that previous experience has shown should agree can be undertaken, though when there has been congestion the more one limits the quantity of food one eats (provided, of course, one is able to maintain strength) the better chance there will be for improvement.

When there is a brain disease characterized by an insufficiency of the blood supply the following treatment usually will be beneficial: Complete Fast No. 3 for one day; No. 2 for one to four days; Fast-Breaking Routine No. 1 following this; after which Milk Diet No. 1 should be followed. The milk diet is especially valuable in diseases of this nature, as it will add materially to the digestive power and will supply an increased amount of pure blood. If conditions are such that one cannot take the milk every half hour as advised, then Milk and Fruit Diet No. 1 may be used; following this one may adhere to whatever diet previous experience has indicated will agree, being careful not to overeat.

In treating these chronic brain troubles the selection of a general vitality-building routine suited to the strength of the patient is desirable. As the entire condition is gradually improved this vitality-building routine may be made a little more liberal in character. In all cases the bowels should be kept in good condition and the patient should be out of doors as much as possible.

Abscess of the Brain. This probably always is secondary to some other condition, such as injury or an extension of inflammation from some nearby location (the middle-ear, the mastoid cells, or the frontal sinus) or from syphilis. Abscesses may be acute or chronic.

Brain
Abscess

Symptoms. These vary according to the location of the lesion. They also vary according to whether the abscess is acute or chronic. Acute cases usually last only two or three weeks. The symptoms generally are less marked than in brain tumors. There are headache, dizziness, vomiting, drowsiness and apathy, slow pulse, later becoming rapid, and in some cases no fever, while in others the temperature is high, depending on the extent and location of the condition. Loss of appetite, coated tongue and some evidence of pus infection are also usual.

Treatment is given with the view of keeping up the strength of the patient and also of favoring the elimination of poisons from the body. (See *Abscess*.) Brain abscess is generally regarded as a surgical condition and early operation usually is recommended by medical men, though if not critical, Fasting Routine No. 3 may be tried before resorting to operative measures.

Brain
Abscess,
Treatment

Brain, Apoplexy of.—See *Apoplexy*.

Brain, Softening of (General paresis, paralytic dementia, progressive paralysis of the insane).—A disease produced by a wasting and destruction of the nerve elements in the cortex of the brain. It manifests itself in a gradual decay of the mental faculties, combined with weakness of the body muscles which, as the disease progresses, may lose their function. The disease is important because of its frequency. It occurs three to four times as often in men as in women; and about ten per cent of all sufferers admitted into asylums are its victims. It is especially prone to develop in the prime of life (thirty to fifty years of age), and usually is fatal within a few years. The principal cause is said to be syphilis, though paresis may not appear for many years after the syphilitic infection. Medical antisiphilitic treatment often has had as much to do with its development as syphilis itself. There are other causes, but they are rather rare.

Brain Softening

Symptoms. The onset is very gradual. Symptoms are both physical and psychical. In the early stages of the disease there are inattention to business, carelessness, forgetfulness, mental fatigue; and later on irritability, exhibitions of temper, excesses of various kinds, often of a sexual nature and sometimes filthy and immoral habits.

There may be extravagance, self-conceit and, in the advanced stage, hallucinations, delusions, insomnia, and melancholia. The speech becomes slow and slurred, the writing is tremulous, words

are left out, etc. The patient presents a stolid face, often with a childish grin. A gradual, more or less transient, paralytic condition develops. The gait is uncertain, the patient frequently tripping, especially on going up steps. There may be sudden attacks of unconsciousness, or of convulsions resembling epileptic fits. The patient finally becomes paralyzed, demented, bed-ridden and the subject of bedsores. The disease generally lasts two to five years.

Brain,
Softening of,
Treatment

Treatment.—The treatment of this complaint, which must be constitutional, depends upon marked improvement in the quality of the blood, preferably as follows: Alternate Fast No. 5 to be continued as long as the patient is able to react favorably. If the patient is very fleshy or even of average weight, it would be advisable to continue this routine for one or two months, provided there are no indications of a lessened vitality.

If assimilation is defective and the patient is below normal weight, do not attempt to fast longer than five days. When the fast is continued for a shorter period, then use Fast-Breaking Routine No. 1, followed by Milk Diet No. 1. Even after a longer fast the milk diet would be advisable, even in cases where the patient is apparently above weight. When one is suffering from a disease of this serious nature it is essential that the quality of the blood be improved as rapidly as possible. This diet can be depended upon to produce a superior quality of blood.

If enemas are resorted to in order to keep the bowels active, do not use any more water than is necessary to bring about the desired result. It is more advantageous to induce the movement without the use of the enema, though when fasting this may be impossible, so the thorough cleansing of the colon at least every day becomes necessary.

Select a vitality-building routine suited to the needs of the patient and follow it religiously each day. Aside from the exercise advised in the routine adopted, there should be plenty of rest, but also some amusement and congenial companionship. Plenty of sleep is important. Air-baths and sun-baths (with caution) whenever possible will be helpful because of their favorable influence upon the nervous system.

BREAST, CANCER OF.—See *Cancer*.

BREAST, INFLAMMATION OF (*Mastitis*).—Acute inflammations of the breasts generally are the complication of a nursing period. The simple form is a result of the overactivity of the mammary gland without proper evacuation of the excessive secretion of milk. This retention produces a condition known as caked breast or stagnation mastitis, which if not soon relieved will give rise to inflammation. If this is not properly treated or if there should be an infection through some crack or fissure in the nipple, pus may

Breast
Inflammation

form and may accumulate in abscesses. Such inflammation seldom occurs in a healthy woman. There is always some general toxemia and frequently the balance of the endocrine gland secretions suffer some disturbance which makes possible the over-activity of the mammary gland.

Symptoms. There are pain, tenderness over the affected area, swelling, hardness and redness of the breast, rapid pulse, elevated temperature and often headache, chilliness and constipation. If pus forms, the redness deepens, fluctuation occurs, the abscess points and finally bursts, discharging large quantities of greenish-yellow pus. Healing may take place rapidly in some cases, but in others sinuses will be left which heal very slowly. Almost invariably only one breast becomes inflamed.

Treatment. Prevention is important in these cases. The mother should live on a strictly natural diet and take regular exercise. If there seems to be too much milk, this should be removed by manual milking of the breast by the mother herself, the breast being supported on the palm and fingers while the milk is expressed by the thumb and forefinger of the same hand. If inflammation should develop in spite of these precautions, it is more important than ever to remove the milk at regular intervals and to observe strict cleanliness. It may also be necessary to support the breast with a gauze bandage. If sufficient inflammation should develop to produce fever, especially if pus forms, the child should be nursed on the sound breast supplemented by the bottle, or entirely weaned. From the very beginning of the mastitis only the sound breast should be nursed.



There are various forms of malignant disease of the breast. The above illustrates one form of cancerous growth.

Breast Inflammation, Symptoms

Breast Inflammation, Treatment

**Breast In-
flammation,
Treatment**

In mild cases a moderate reduction in the diet, together with thorough cleansing of the bowels with enemas and proper local care of the breasts, will give relief. If the inflammation is severe enough to induce fever, Complete Fast No. 2 is indicated, to be continued until all signs of inflammation have subsided. It is then followed by a fast-breaking routine in accordance with the length of the fast. The milk diet should be used during convalescence when possible; otherwise Salad Diet No. 6. If the patient is overweight, however, it would be better to use a diet mostly of fruits and vegetables, with buttermilk and small amounts of whole-grain products or bran preparations, together with plenty of water between meals. Nuts and considerable quantities of milk should be avoided until all symptoms have disappeared. Over-eating must be most carefully avoided. If natural bowel actions are not sufficiently ample and frequent, enemas should be employed regularly each day from the start until normal movements are obtained after eating has been resumed.

The use of hot compresses over the area of inflammation is valuable for relieving both the pain and the inflammation, accelerating the local circulation and hastening the curative process. If these hot applications are used they should be changed frequently enough to maintain a fairly constant, high degree of heat for twenty or thirty minutes, a cold compress then being applied for two or three minutes. Radiant light and heat or infra-red irradiations may substitute for the fomentations.

A large natural or rubber sponge cut out to admit the breast, cleansed thoroughly, boiled, saturated with hot boric-acid solution and fitted over the breast is excellent. Short applications of ice-cold compresses are valuable in very early stages but not later. Also, the breast may be massaged gently toward the nipple, and a mammary binder may be worn to immobilize the breast.

When there is fever, and particularly when pus forms, a general cold-sheet pack may be given daily for two or three days. If the patient is weak this pack may be limited to the trunk only. If the cold-sheet packs are not used the local hot compresses may be applied twice a day; but if the cold compresses are used they should be used only once a day. In any case from three to five hours should elapse between water treatments. Rest, of course, must be observed during the acute symptoms. A vitality-building routine suitable to the strength of the patient would be advisable, selecting one that can be followed without difficulty as long as necessary.

If the inflammation increases to abscess formation, use the treatment advised under *Abscess*, though one should consult a qualified physician if there is abscess or danger of abscess.

BREAST, TUMORS OF.—Tumors, both benign and malignant in character, may attack the female breast. (See *Cancer of Breast*, under *Cancer* in alphabetical position.)

**Breast
Tumors**

Of the benign or non-malignant tumors of the breasts the most common are fibrous; fatty, cartilaginous, and glandular. The last may be of several different classes, in some of which there may be danger of their becoming malignant under certain conditions.

Of the malignant tumors the principal ones are the cancer and the sarcoma.

Treatment. Benign tumors of the breast sometimes may be reduced by following a vitality-building routine. As a rule a short fast followed by Milk Diet No 1 can be depended upon. When it is inconvenient to follow a strict routine of this nature, by simply picking out a general vitality-building routine suited to the strength of the patient and using a fair amount of care in the diet the unpleasant symptoms often will disappear. If they do not abate, a more strict routine must be prescribed and followed in detail.

**Breast
Tumors,
Treatment**

When these strict methods are found necessary, Complete Fast No. 2 for ten to twenty days or longer is advised. If the fast is continued for only ten days, then Fast-Breaking Routine No. 1 or 1A should be followed; if the fast continues for twenty days, Fast-Breaking Routine No. 2 or 2A should be used. The milk diet will be desirable in nearly all cases unless one is considerably above the normal weight, in which event use the other dietetic routine (A) advised. Following Milk Diet No. 1 use Combination Milk Diet No. 2 or 7, whichever is more palatable to the patient. This diet may be continued for an indefinite period or until the patient apparently has recovered, after which an ordinary routine may be followed.

The vitality-building routine adapted to the strength of the patient should be followed in every detail, in addition to the suggestions on diet given. See Limited Diets Nos. 11 to 14 and Salad Diet No. 6.

The bowels should be kept normally active. An out-of-door life would be advantageous.

BRIGHT'S DISEASE.—See *Kidneys, Diseases of*.

BRONCHIECTASIS (*Bronchiectasia; Dilatation of the bronchi*).—This term denotes a dilatation or relaxation of the bronchial walls. Inflammation and violent coughing of chronic bronchitis is the usual cause, but sometimes it results from pleurisy with adhesions, from bronchial obstruction by an aneurysm or foreign body, from chronic tuberculosis and from fibroid pneumonia. A congenital defect also may be responsible for it. The condition rarely occurs primarily, but follows one of the conditions mentioned above.

The chief *symptoms* are severe paroxysmal cough, especially

at night, dyspnea or difficult breathing and copious expectoration of mucopurulent grayish or brownish material, usually at the end of a paroxysm of coughing. The expectorated matter is extremely offensive. Upon standing in a glass vessel it may be seen to have three layers: an upper layer of dirty brown froth, a middle layer of cloudy mucus and a lower one of decomposed pus containing pus-cells, fat-cells and many micro-organisms, but no tubercle bacilli.

Treatment is unsatisfactory as to cure, but may aid one to live to a satisfactory age. In general the treatment is the same as for chronic bronchitis. Steam or ozone inhalations may help materially to clear the bronchi of their secretions, thus allaying the cough. A general vitality-building routine well within the patient's strength and physical condition should be followed systematically.

BRONCHITIS.—Bronchitis or bronchial catarrh is due to inflammation of the mucous membrane of the bronchial tubes and branches. The disease may occur as an acute or a chronic affection; it may implicate one side or both; it may affect only the larger, or only the finer ramifications of the tubes, or it may involve the entire "bronchial tree."

The most frequent exciting *causes* of bronchitis are improperly treated or neglected recurring colds, or harmful inhalations of some kind, as of smoke, dust or gases. Exposure to chill when in a very heated condition may produce an attack when the proper "soil" is present; and certain trades, such as stone-cutting, carpentering, milling, paperhanging, turning and file-cutting, are prone to produce their share of sufferers owing to the dusty nature of these occupations. Inhalation of tobacco smoke is a very prolific cause of this condition. Those who stay indoors in super-heated dry atmosphere, who are constipated and who overeat, especially of starches and sugars, are notably subject to bronchitis.

Acute Bronchitis is due to an accumulation of systemic toxins which makes it necessary for the mucous membrane to assist the other organs of elimination. Aside from the causes already given, bronchitis may accompany *acute* diseases, such as colds, influenza, nasal troubles, etc. Treatment is then directed toward the original condition, together with the local measures advised below.

Symptoms. This disease generally begins with a sudden rise of temperature, often accompanied by a chill. In many cases, however, there is no appreciable fever. The most prominent symptom is the cough. In the throat there may be tickling which causes frequent coughing, usually accompanied by soreness behind the upper part of the breast-bone. During the first two or three days there is an annoying inclination to cough but no expectoration, the cough being hard and dry. Tenacious mucus accumulates in the bronchial tubes and causes a wheezing or humming sound

Bronchitis,
Causes

Bronchitis,
Symptoms of
Acute

during inspiration. This can sometimes be heard for some distance from the patient. From the exertion of coughing and the consequent rush of blood to the head there may be headache, vertigo, nausea, and even vomiting.

After a few days the cough lessens, the mucus becomes less viscid and tenacious, and on coughing the patient expectorates a greenish, mucopurulent secretion, thickish in consistency. In children and old persons the affection may extend to the lungs proper, causing bronchopneumonia. In the milder forms of the disease the symptoms disappear within a few days to a week. Even in some severe cases there may be disappearance of all symptoms within two weeks, though often a month or more is required for restoration to normal. Much depends on the strictness with which treatment is followed.

Chronic Bronchitis develops either as a chronic condition from the beginning or it results from recurring and especially from neglected acute attacks. Its most frequent *cause* is the continued inhalation of dust, especially the dusty atmosphere met with in many industrial conditions, especially when intensified by tobacco smoke.

Bronchitis,
Symptoms of
Chronic



For bronchial infections, laryngitis and similar forms of diseases, steam inhalations may be found effective. When in use, the portion of sheet now drawn aside is dropped to make a sort of tent.

Symptoms. The prominent symptoms are cough and expectoration. The cough is obstinate, especially in morning and evening and at night. At times it causes vomiting. Some patients have little or no sputum; others expectorate freely, many bringing up thin masses of a watery substance. Slight traces of blood often are found in the expectorated matter. The course of the affection varies, improving during the warm and mild weather, and becoming aggravated during the winter.

Bronchitis,
Treatment of
Acute

Treatment. The treatment of acute bronchitis differs materially from that advised for the chronic form. A sudden acute attack, if properly treated, will completely disappear in a few days; but the chronic form may require weeks, in some instances months, to pass away.

In *acute* cases due to exposure or the inhalation of irritating material, these causes must, of course, be removed. After this, the treatment of all cases is similar.

Complete Fast No. 2 should be immediately instituted and continued until the acute symptoms have subsided, especially until 24 hours after any fever is gone. Two warm enemas should be given the first day and one each day thereafter. A plentiful supply of fresh air is a vital necessity. An inflammation of the bronchial tubes will always interfere somewhat with breathing. It is, therefore, all the more necessary that the air be as fresh as possible. This also increases elimination through the lungs. The water drinking and enemas will increase the elimination through the kidneys and the bowels. Skin elimination is increased by a general wet cold-sheet pack given on the first day. On the second day the pack may be limited to chest and abdomen and thereafter, if satisfactory progress is being made, to the chest alone. The packs may be discontinued as soon as the worst of the inflammation has subsided.

Bronchitis
Cough, Treat-
ment

If the cough is very distressing, hot compresses may be applied to the chest for fifteen or twenty minutes in addition to the packs just mentioned; but from three to five hours should elapse between these treatments. The hot compresses are to be followed, of course, by the cold compress for one minute. In exposure cases it would be better to use hot-blanket packs instead of cold-sheet packs. Rest is to be observed until acute symptoms have subsided. Acute sunburn doses of ultra-violet light over the chest are very valuable in this condition.

After adopting these simple remedies as a means of relieving the unpleasant symptoms of acute attacks of bronchitis the following daily treatments are advised for their constitutional benefit:

Special Manual Treatments 1 to 10 in the morning. A wet-sheet pack toward evening for the first two or three days. If the

patient is improved on the third day and thereafter, give Special Manual Treatments 11 to 16 in the afternoon.

The length of the fast that begins the treatment will vary according to the case and the individual, but, if treatment is started promptly, seldom would need to be longer than five days. However, it should always be continued long enough to relieve the acute symptoms. Fast-Breaking Routine No. 2 will apply in most cases, and this should be followed by Milk Diet No. 1 when possible. The milk diet quickly increases the vitality and resistance, which are important in avoiding future attacks. A vitality-building routine suitable to the patient's condition should be adopted a few days after starting the milk diet, and continued indefinitely.

After the patient begins to improve and there is a distinct appetite, then Limited Diet No. 1 should be used for three or four days, following with Milk and Fruit Diet No. 1. After this the patient probably will be in a condition to resume any ordinary diet which he knows from experience will agree with him.

The treatment of *chronic bronchitis* is entirely constitutional in nature. We do not in any way view this as a local disease. It is due to a condition that affects the entire body and it is manifested in the bronchial tubes because of the existence of foreign material in the blood—toxins of various kinds. Therefore, in order to relieve chronic bronchitis, the very first essential is to purify the blood-stream. Begin this process with a fast, lasting for two to ten days or even considerably longer, depending altogether upon the strength and vitality of the patient and the effects of the fast. If the fast continues less than five days then Fast-Breaking Routine No. 1 or 1A may be used. If it continues more than five days then Fast-Breaking Routine No. 2 or 2A may be followed. The fast may be repeated.

Bronchitis,
Treatment of
Chronic

It is advisable in nearly all cases of bronchitis to use Milk Diet No. 3, at least for a short period. If the patient is below normal in weight then it would be decidedly to his advantage to continue this diet as long as he is gaining weight. If he is above normal in weight he also may take the milk diet, but use only such a quantity daily as will not cause a gain in weight. Following this diet Milk and Fruit Diet No. 1 for one or two days is suggested, then an ordinary dietetic routine that will agree with the patient may be adhered to.

Of value in this condition are graduated cold baths, protected cold chest packs, steam inhalations or weekly cabinet vapor baths and copious water drinking. Drinking hot water often helps greatly. Ineffective coughs are aided by rubbing the chest with the hand dipped in ice-water or slapping it with a cold wet towel.

Radiant light and heat, chest fomentations, percussion or

sinusoidal current (or both) from the seventh to the fourth cervical vertebrae, spinal manipulations such as suitable back and shoulder movements (See Vol. VI, Sec. 3) and massage are all of great benefit, so some of these should be used.

It is especially important in the treatment of chronic bronchitis that a general vitality-building routine be adopted and followed closely each day if one is to expect satisfactory results. Long walks and deep breathing exercises are especially important in remedying this affliction. The increase in vitality will result in the more perfect action of the depurating organs, hence elimination in time will be thorough without special treatment. The essential factors of the treatment, however, should be the building of vitality and the concomitant purification of the blood. Natural sunbaths or ultra-violet light used in large constitutional doses is very effective here.

When accompanied by much expectoration, bronchitis should have a warm, dry, inland climate; when this secretion is scanty, a warm, moist climate. Chronic bronchial catarrh, with considerable secretion and moderate cough, does well in seashore, mountain or inland climate. The change alone, regardless of climate (except it be cold and very damp—which would not be beneficial) does much good in these cases.

BRUISES.—See *First Aid in Accidents and Disease*, Sec. 5.

Bubo,
Causes

BUBO.—This is an inflammation, with enlargement, of one or more of the inguinal glands. The disease takes its name from a Greek word which means the groin. Bubo is caused by the entrance of infectious material into the lymph channels, through which it passes to the inguinal glands. It usually is venereal in nature. Similar infection of the lymphatic glands may take place in locations other than the inguinal region; for example, the neck when the infection comes from some condition in the head or the neck, or in the axilla or the elbow where infection comes from some portion of the arm or the hand.

Certain diseases, such as tuberculosis and bubonic plague, or certain general pus infections, may cause these glandular swellings, although in the great majority of cases, as stated above, the condition arises from infection due to venereal diseases, gonorrhea, chancroid, or syphilis.

Bubo,
Symptoms

Symptoms. When the condition is due to the infection of syphilis and when it appears from one to two weeks after the beginning of a hard chancre, the swelling is hard, painless, and as a rule does not suppurate. When, however, it is due to other causes it is very painful and has a tendency to suppurate. A bubo which comes as a result of a chancroid nearly always goes on to pus formation unless it can be checked by early constitutional treatment.

A bubo which is chancroidal in origin is likely to appear within two or three days from the occurrence of the chancroid. When a bubo is of gonorrheal origin it usually does not appear until one or two weeks after the appearance of the gonorrheal discharge. In the case of chancroid, the bubo generally appears upon the same side of the body as the original seat of infection.

Bubo is recognized by the hard swelling of the gland, pain in the groin, great tenderness upon pressure, redness, heat and the inability to move about without suffering. In severe cases the pain is continuous, becoming more severe until suppuration takes place. At this period the pain disappears, or becomes much less, and the swelling may begin to soften and to fluctuate. The swelling then becomes dark and livid and after a time rupture occurs with the discharge of pus. If the opening is small the pus may not readily escape and may burrow into the adjoining tissues and cause the formation of other pus accumulations. The pus, as a rule, is offensive and fairly considerable in quantity.

In size these bubos vary, some being as large as a walnut, others as large as a hen's egg. In some of these glandular enlargements there is no tendency to abscess formation, but a protracted, low-grade inflammation which may extend into the scrotum, giving rise to a dull but persistent pain in the testicles. Occasionally a chancroidal bubo will take on a very virulent form. When this occurs the edges of the opening become much ulcerated and are rapidly eaten away, developing an extensive sore which is very intractable and which results in great destruction of tissue and a necrotic condition of the soft parts.

Healing of bubos frequently is slow. Often, too, if the bubo is not incised before spontaneous rupture occurs the opening made by the rupture of the bubo must be enlarged in order to prevent the retention of pus, with the possibility of its burrowing into the neighboring tissues. If these suppurating bubos are kept perfectly clean they generally will heal as any other similar condition heals, though if neglected, especially in weak persons, they may develop numerous fistulous tracts, which usually are very troublesome and slow to heal. There may be more or less sloughing or ulceration, involving considerable destruction of tissue. Severe hemorrhages sometimes occur as a result of the eating into the coats of blood-vessels. In rare cases the condition becomes so chronic and intractable that general sepsis, or blood-poisoning results, possibly with fatal results.

Syphilitic bubo is discussed in connection with syphilis.

Treatment. As this disease rarely appears by itself, but accompanies a venereal disease of some character, one naturally will understand that any treatment advised must be used in connection

Bubo, Healing

Bubo, Treatment

with the treatment prescribed for the venereal disease. In nearly all cases the application to the affected part of cold wet cloths which should be allowed to remain on all night will materially modify the painful symptoms of this affection. Strong Epsom salts compresses are also recommended. If treated properly and promptly the bubo sometimes will not suppurate. When the swelling is unusually painful hot sitz-baths may be recommended for immediate relief, though alternating hot and cold sitz-baths should be taken once or twice daily, making two or three changes from one to the other, using hot water first and always terminating with cold water. If this is inconvenient, one might take a ten-minute hot sitz-bath upon arising and a cold one before retiring.

It is well to flush the blood and the tissues with a large quantity of liquid when suffering from a disease of this nature. In connection with the general treatment that is advised, the following is suggested as a means of rapidly purifying the blood-stream provided it does not conflict with the treatment advised for the underlying disease: Complete Fast No. 2 for ten to fourteen days, or even three weeks, followed by Limited Diet No. 2 from two to four days, followed by Milk and Fruit Diet No. 1, which may be continued until the symptoms of the disease disappear. The bowels should be kept open. Active exercise must be avoided if it causes pain. The best treatment is ultra-violet rays.

BUBONIC PLAGUE.—See *Plague, Bubonic*.

BUMPS.—See *Contusion*, Sec. 5.

BUNIONS.—See *Corns and Bunions*.

BURNS.—See *First Aid in Accidents and Disease*, Sec. 5.

Bursitis,
Causes and
Symptoms

BURSITIS.—Inflammation of the bursal sacs between parts that move against each other. Bursæ are located in many parts of the body, but the term bursitis usually means an inflammation of those located in the joints. Whether acute or chronic, bursitis generally is the result of strain or injury, especially when improperly treated or if the patient is toxemic. In the latter cases the inflammation may proceed to the stage of suppuration or even to abscess formation. The joints most frequently affected are those of the knee, the hip, the elbow and the shoulder, though the toe-joints may be affected, especially if there are corns and bunions.

Acute bursitis is associated with marked swelling, redness and local heat when superficial. When in deeper tissues swelling may not be observed or detected, though the pain may be severe. There may be general fever, especially when suppuration develops. The inflammation sometimes extends to a neighboring joint and involves the synovial membrane, which is easily penetrated. This form is not so frequently observed as *chronic bursitis*, which develops insidiously, has no pain, but causes pronounced swelling.



PLATE 95. Epithelioma is a superficial cancerous growth, usually of slow progress.

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This swelling sometimes becomes very dense, and may feel almost as hard as bone; in fact calcification sometimes takes place. *Housemaid's knee* is a chronic bursitis, involving the prepatellar bursa. (See *Housemaid's Knee*.)

Treatment. In cases due to strain or injury, especially acute cases, rest of the affected part is imperative, and it is best to immobilize (prevent motion of) the extremity by a splint. The part also should be elevated somewhat. If possible to apply immediately, very cold compresses will be of greatest benefit. Otherwise fomentations and hot Epsom salts packs or heating packs will be best. Apply fomentations or hot compresses twice a day for 30 to 45 minutes each, followed with a cold compress for three to five minutes.

Bursitis,
Treatment

Each night a cold pack may be applied and allowed to remain on all night. This is more effective if protected. (See *Heating Compress*, under *Compresses*, Vol. VI, Sec. 2.)

In the more severe cases, especially if pus is forming, constitutional treatment will be required. This is given in detail under the heading of *Joints, Diseases of*. Chronic cases should have rest, but not necessarily immobilization. Infra-red or ultra-violet rays will be helpful, also massage following heat by any method.

CACHEXIA.—A generally impoverished and devitalized condition, common to many chronic diseases. (See *Vital Depletion*; also *Cancer*, in which cachexia is pronounced.)

CALCULUS.—Bladder or kidney stone. (See *Bladder, Diseases of*.)

CANCER.—Cancer is described as a malignant neoplasm or new growth. There are several varieties of this dread disease; some are superficial and some deep. The name cancer is generally used to mean what is technically called carcinoma, in contradistinction to other malignant growths, such as sarcoma, enchondroma, etc. These latter are somewhat similar though slower growing neoplasms; but, like cancer, they are malignant and tend to produce death from exhaustion or infection.

Cancer,
Forms of

Superficial cancer is called *epithelioma* or skin cancer. Deep cancers are of several varieties: (a) *Scirrhus*, or hard cancer; (b) *Encephaloid*, or soft, or medullary cancer; (c) *Colloid* cancer.

Epithelioma may be very superficial and resemble an eating ulcer; or it may be deeper, eating out the tissues beneath it; or it may be in the nature of a cauliflower-like growth. The first species generally is found on the face or the eye; the second on the lips, tongue or the external genitals; the third species in bladder, stomach, rectum or uterus.

Of the deeper cancers, *Scirrhus* is most common in the female breast. A scirrhus cancer has a hard, woody feel, owing to the large amount of fibrous tissue found in it in combination with the cancerous cells.

Encephaloid cancer is the most rapidly growing and the most malignant of all the cancerous growths. It is soft, exuberant and fungoid, with a tendency to ulcerate and bleed.

Colloid cancer consists of a collection of firm, hard nodular growths containing a gelatinous material. These cancers are slow in growth and development.

Cancer,
Causes

Causes of Cancer. For several years the real cause or causes of cancer has been the subject of much discussion. Stray cells, or cells displaced in some manner during embryological development, that later start to multiply, specific germs, irritation, and other causes have been considered. X-rays definitely have been found to give rise, at times, to cancer. But none of these factors can be the sole cause.

Rarely does cancer develop before the age of thirty. The commonest age is between forty and sixty years. This fact adds weight to the toxemia theory of the cause. According to this theory an extremely heavy degree of toxemia is necessary before cancer can develop, so it is unusual for such a degree as will give rise to cancer to be developed before the age of thirty. Usually it requires longer than this.

Given a sufficiently pronounced degree of toxemia, a local irritation is likely to start a cancer growth by creating a state of congestion and an abnormal cell activity. This is why smoking may cause cancer of the tongue or the lip; why ulcer of the stomach or the resulting scar may lead to cancer of the stomach; why constant irritation of the uterus, from one or several of many causes, may eventually give rise to cancer of the uterus; why a bruise or a blow or a corset or other factor that creates a "lump" in the breast may lead to development of cancer of the breast; and why any oft-repeated irritation of the skin in a local area may cause cancer of the skin at this point, etc.

Cancer,
Irritations
and

But these irritations do not normally cause cancer in any of these locations if the blood-stream is healthful, if it is not polluted with an excessive amount of toxins and if it is adequately supplied with its essential vitamins, minerals and other food elements. Keep the blood-stream reasonably free from toxemia, keep the blood generally provided with needed elements and circulating normally, without local congestions; in other words live rationally, and cancer need not be feared. It cannot be inherited, nor otherwise transmitted.

Cancer,
Symptoms

Symptoms. Cancer appears in a great variety of forms and in all parts of the body. It is most dangerous, however, when one or more of the vital organs are attacked. The character of the symptoms may change as the disease progresses. What at first may appear to be a simple benign growth may change into a malignant

excrescence. But the symptoms mentioned below are more or less common to all forms of the malady.

The symptoms of cancer are materially influenced by the location of the growth. Yet there are several symptoms common to the complaint wherever it may be located.

First. A tumor or swelling invariably forms.

Second. The tumor grows steadily and invades the surrounding tissues indiscriminately.

Third. Excruciating pains are an inevitable accompaniment, especially in the later stages.

Fourth. There is a tendency to the formation of secondary growths either close to the original one or in distant portions of the body.

Fifth. In the majority of cases the central portion of the tumor shows a tendency to break down and ulcerate, with a discharge of purulent, foul-smelling and evil-looking fluid.

Sixth. Emaciation and weakness are progressive.

Seventh. A peculiar color and opacity of the skin is present.

Of the two general classes of cancer formation, the harder or more fibrous form may appear as early as twenty-five years. The form which is most prone to softening and ulceration usually is found in persons above the age of forty. The most common sites of the growths are stomach, breast, tongue, skin and uterus.

Cancer of the stomach is fairly common. Any portion of this organ may become the seat of cancer, but the pyloric or small (exit) end is by far the most frequent site. Sixty per cent. of all stomach cancers begin at this point. In males, cancer of the stomach is more frequent than in any other part of the body.

Cancer of
the Stomach,
Symptoms

The history is as follows: For some months the patient suffers from indigestion in one or more of its forms. The appetite progressively lessens and there is increasing pain and nausea upon the ingestion of food. Later on there is vomiting, especially when solid food is taken; and, toward the end of the disease even liquids are ejected. The pain may become intense after the ingestion of food. This is an early symptom, the pain usually being in the stomach, though sometimes it is referred to the back of the shoulder. The pain is of a dragging character and is rarely paroxysmal.

In the later stages severe hemorrhage from the stomach sometimes occurs. Blood with the appearance of coffee-grounds is vomited in large quantities. Similar material also may pass from the bowels. Frequently a hard pulsating tumor may be felt in the pit of the stomach. Through inability to take nourishment, weakness and emaciation follow. The skin becomes sallow, and loses its transparency. In addition to these symptoms swelling of the lower extremities and of the abdomen may occur.

Cancer of
the Tongue,
Symptoms

Cancer of the Tongue usually appears as a small pimple on the site of some point of continuous irritation. This will not heal, but begins to grow rapidly. Sooner or later it ulcerates at the center in the same manner as cancer in the breast and with similar symptoms. The ulcer may deepen to such an extent that a hole may appear in the tongue. The usual enlargements of the glands in the surrounding tissues are found and there are severe pain, emaciation and weakness.

Cancer of
the Breast,
Symptoms

Cancer of the Breast generally appears as a small hard lump which grows more or less rapidly, distending and tightening the skin. It usually is adherent to the under surface of the skin, which it draws down so the pores show plainly and give the appearance of pig skin. The color of the skin in this region becomes at first dark-red, then purple; finally a black spot appears in the center of this discoloration. This black spot soon gives way to an open sore, rapidly increasing in size, with rough, irregular edges and walls. An abundant purulent discharge follows. The pain is stabbing or shooting in character and may or may not be continuous. At an early stage of the disease small hard lumps, the swollen axillary glands, can be felt in the armpit on the same side of the body. Accompanying these symptoms are those of emaciation and weakness.

Cancer of
the Uterus,
Symptoms

Cancer of the Uterus is rarely found in women under forty years of age. It often appears at the time or after the change of life. The symptoms are pain, stabbing and tearing in character, with bearing-down sensations and a purulent, irritating, blood-streaked discharge from the vagina. The usual emaciation and weakness are present. Women who have borne many children are most subject to this disease. The most frequent site of uterine cancer is in the neck of the uterus. This is probably because of a chronically irritated condition due to injury to this part of the uterus during confinement.

Cancer,
Treatment

Treatment. In the treatment it must be remembered that in one suffering from cancer the poisonous matters associated with the complaint are a part of the blood-stream and are circulating throughout the entire body. One might say, therefore, that in an advanced stage of the disease this poison to a great extent is affecting the tissues of the entire body. Hence it is easy to understand that the cutting out of the original cancer will not eliminate the disease itself. The *real* disease is a profound toxemia. If one cancer growth has been eliminated the patient may expect other growths to appear elsewhere, provided that the growth was true cancer in the first place, and provided that means are not adopted with a view of eliminating from the blood the systemic and cancer poisons.

Under the circumstances, therefore, it is easy to realize that

whether the cancer which one is treating is located in stomach, breast, uterus, or elsewhere makes little difference in the constitutional treatment. The treatment is almost identical in all cases; the only difference is that it might be desirable to stimulate the circulation in the affected part by the application of hot and cold wet cloths and other means that would bring about the desired results.

For instance, in cancer of the stomach hot or cold abdominal packs would be of value in alleviating pain and other distressing symptoms. As a rule, cold wet abdominal packs applied at night and allowed to remain until dry, or until morning, would be of decided value. If the patient is weak and emaciated, hot abdominal packs or compresses will be preferable to cold packs. Whether these packs should be hot or cold depends largely upon the condition of the patient and the degree of comfort which they afford him. If the patient feels warm after the application of the cold abdominal packs they are of value and should be continued.

As a local treatment for external cancer, steam, applied by a steam douche or jets, has a decided value, hence it may often be used with excellent results for loosening and aiding in the elimination of the ulcerated tissue. It is claimed that the Sioux Indians many years ago used for superficial cancer a treatment similar to this. A ridge of clay was applied around the lesion to protect healthy tissue and the cancer was then treated either with steam, or boiling or very hot water. Although naturally very trying to the patient, it is claimed that this heroic method would destroy the malignant tissue, causing healthy granulations to take its place in the course of time.

Cancer,
General
Treatment

The discomfort associated with cancer of the breast often can be materially alleviated by the use of a local wet-sheet pack. This pack should be cold or hot in accordance with the condition of the patient, the same as in the use of the abdominal pack for cancer of the stomach. The severe pains in many instances can be materially mitigated by this pack.

The pains in cancer of the uterus can be palliated in the same way by hip packs, hot or cold in accordance with the requirements of the case. Hot sitz-baths also can be used to advantage. They are especially valuable when the pain is severe. Alternating hot and cold sitz, two or three changes, taken daily, using the cold last, are valuable as a local stimulant and general tonic. Make cold sitz just a dip. Avoid very cold sitz.

No modern aid of the microscope and the laboratory, even of desiccation of the cancerous growth (when external) by heat applied through an electric needle or by concentrated sun rays and perhaps the skilled use of radium should be forgotten.

Beyond these few suggestions the general plan for the treatment of cancer is chiefly a blood-purifying process. With this end in view begin the treatment with a fast, its duration depending entirely upon the vital condition of the patient. Complete Fast No. 2 or No. 3 should be followed, the fast continuing for five to twenty days, or even longer if the patient does not seem to be badly affected or too much weakened by this long abstinence from food. Use the fast-breaking routine applicable to the length of the fast. Several repetitions of this fast and fast-breaking as conditions indicate, will be necessary.

If much below normal weight then it is especially important that the milk diet (Milk Diet No. 1) be followed as long as a gain in weight is noticed. As soon as the patient ceases to gain in weight, then adopt Combination Milk Diet No. 3 for an indefinite period, perhaps for many weeks. Following this he may adhere to almost any routine that his former experience has indicated would be satisfactory to him, but the diet should predominate in salads and cooked green vegetables and fresh fruits in season.

In cases where one is of average weight then the milk diet can be followed until the weight that has been lost during the fast will have been regained; after which is advised Combination Milk Diet No. 3 for a few days, following which he may change to No. 6 if the soured milk is more palatable. Following this he may take Salad Diets Nos. 1 or 2, or, preferably, No. 6; after which he may adopt any ordinary diet that seems to be palatable and satisfactory in his particular case, with the special precaution mentioned above. If above normal weight Salad Diet Nos. 5 or 6 for several weeks may be advised. In many cases where the patient is very weak Fasting Routine No. 5 will be most satisfactory.

In cancer of the stomach it often is best to give from three to six cups of vegetable broth or whole-grain cereal gruel daily instead of the complete fast. (See *Vegetable Broths* and *Cereal Broths*, in Sec. 6.)

Special Manual Treatments 11 to 16 would be especially valuable if taken early in this complaint.

The selection of a general vitality-building routine adapted to the strength of the patient is especially important, this to be followed religiously day after day. Care must be observed that more energy is not expended by activity than can be daily recuperated. In fact considerable rest is important.

In cases which cannot stand a long fast and where the milk does not agree, a series of shorter fasts with an animal protein-free diet between fasts may be used. In this diet, meat, eggs, cheese, and milk are omitted, using mostly fruits and vegetables, with

whole-grain cereals and nuts in small amounts occasionally. Raw foods are particularly important, especially grapes and tomatoes. Drink plenty of water. Salt particularly is to be avoided in any diet.

CANKER SORE-MOUTH.—This term, or simply “canker,” is used by many people for minute sores on the tongue or the cheeks or the lips internally, making mastication painful and often causing pain by even the movements of the tongue in speaking or passing over the teeth or cheeks. The condition is due to fermentation or excess acidity in the stomach, usually as a result of using wrong food combinations, especially those responsible for causing fever-blister. The “cankers” or sores usually disappear spontaneously within one to three or four days. In addition, one may hold and swish around in the mouth plain cold water or boric-acid solution, or a solution of any of the modern antiseptics suitable for mouth use, having any of these at proper strength for such use. See *Fever-Blister* for treatment.

Canker,
Causes and
Treatment

CARBUNCLES.—A carbuncle is an acute circumscribed inflammation of the skin and tissues beneath the skin (subcutaneous tissues), together with the formation and discharge of pus through numerous openings and finally sloughing of the affected tissue. A considerable scar may be left, especially if the inflammation is not properly treated. Carbuncles are related to boils, being due to the same fundamental causes, but are distinguished from boils by their larger size and multiple points of discharge, also by the constitutional symptoms which accompany them. A carbuncle is supposed to be due to an infection of a hair-follicle; but the constitutional symptoms which accompany it show plainly that it is not a local condition. Carbuncles appear only in those people who are manifestly toxemic and debilitated, thus showing that the real cause is the need for extra elimination. People who live properly and who keep the body clean inside as well as out will not develop carbuncles.

Carbuncles,
Causes

Treatment. Because the appearance of a carbuncle indicates that the patient is in a highly toxemic condition, constitutional treatment is of the utmost importance. Complete Fast No. 3 is indicated, this to be continued until at least a day after all fever is gone. If by this time the local symptoms have subsided or show definite signs of subsiding, the fast should be continued for several days longer, in order to be sure that the body tissues have been thoroughly cleansed. Fast-Breaking Routine No. 2 should then be used, followed by Milk Diet No. 1. Enemas should be employed daily during the fast and the first few days of the milk diet, as it is highly important that the bowels be kept free from waste accumulations. Rest and ample fresh air are imperative.

Carbuncles,
Treatment

Carbuncles,
Diet for

If the local symptoms have not subsided by the time the fever is gone and the carbuncle shows signs of increasing toward the point

of discharge, then instead of fasting further after the temperature is normal, Fast-Breaking Routine No. 1 should be used and followed immediately by Milk Diet No. 1. The milk diet is especially valuable in these cases, as it facilitates drainage of pus from the carbuncle and improves the healing which follows this complete elimination. It also assists in limiting or preventing scar formation. Should the patient dislike milk, use vegetables and fresh fruits.

Whichever fasting and dietetic plans are taken, skin elimination should be accelerated by the use of a cold wet-sheet pack daily for several days, though if the patient is much debilitated the hot-blanket pack may be used instead. If by this time the carbuncle is definitely improved no local treatment will be required. If, however, it continues to form, local hot Epsom salts compresses should be applied twice daily for twenty to thirty minutes, following each time with the application of a cold compress for one minute. These compresses should be at least 10 inches square. If the skin is tough, a flaxseed poultice may be used to soften it.

Carbuncles,
Sun-Baths
for

After fever has subsided local irradiations with sunlight or an ultra-violet ray lamp will be of added value. If the patient has good vitality an electric-light cabinet bath or a vapor bath may be taken until vigorous perspiration is produced twice a week; or a hot immersion bath may be taken for half an hour daily for three or four days. Any of these will aid general elimination.

When the proper constitutional treatment is employed along with these local measures, lancing seldom will be required. In no case should it be performed too early. The doctor should wait until the body has had a good chance to bring about natural discharge. Echinacea cerate dressings will help bring the carbuncle to a point and assist in drawing out the pus. If lancing is performed too early it may aggravate the symptoms. At any time in the course of a carbuncle from its beginning to its healing, after or without lancing, sunburn by sunlight or ultra-violet rays to the local area will be an aid to the tissues.

In no case should one depend upon local treatment alone. The blood must be cleansed. After this has been done every effort should be made to strengthen the vitality and the resistance by following an appropriate vitality-building routine. In most cases Routines No. 3, No. 2 and No. 1 will apply in the order named.

CARCINOMA.—See *Cancer*.

CARDITIS (*inflammation of the heart*).—See *Heart, Diseases of*.

Castration

CASTRATION (the removal of the testicles by surgical operation).—This is done in the treatment of some forms of cancer, in many cases of tuberculous testicle, in certain syphilitic conditions of the testicle and for other disease conditions. The removal of both testicles should not be permitted unless absolutely necessary.

In certain Oriental countries there is a demand for what are called eunuchs, men who have been castrated, or emasculated, as it is called. Oriental men of means employ eunuchs in their harems, because these servants will not molest their women.

Inasmuch as the removal of the testicles does not always completely destroy the ability to indulge in sexual intercourse, the entire genitals sometimes are removed and it is said that this class of eunuchs is in great demand. The men who are subjected to this barbarous practice generally are drawn from savage tribes in certain parts of Africa. After this operation of desexing, the men, as a rule, become heavy, fat and sluggish in nature. For not only does castration destroy the reproductive capacity and usually also the desire for sexual intercourse, but it has a marked effect upon the body in general, through depriving the body of the testicular internal secretion. These men are robbed of their ambition as well as their energy, so they become affected in their general health and strength.

Castration.
Effects

CATALEPSY.—Sudden attacks of a rigid trance-like condition, with total loss of voluntary motion and sensibility, are nervous disturbances, especially likely to occur in persons inclined toward hysteria. They may last for a few hours, a few days or a few weeks. Catalepsy is due to wrong habits of living, including wrong thinking, which induce general toxemia, nerve irritation, supersensitiveness and emotional instability. Sometimes it is due entirely to repressions and inhibitions, and wrong thinking is always the prominent cause. Among the physical causes may be mentioned the use, especially, of tea, coffee, tobacco and alcohol, and indulgence in energy-wasting habits, such as staying up late at night, dissipating in exciting amusements, or indulging in sexual excess or abnormal sexual practices.

Catalepsy,
Causes

Symptoms. The symptoms of this disease vary according to the two principal forms of the complaint. In the first form the patient becomes rigid in the position which he happens to have assumed at the time of the seizure. In the other form the limbs can be moved into any position but they will remain in that position for a considerable time, even though it may be uncomfortable. This trance-like state may continue for weeks, during which the patient neither eats nor speaks nor is affected by external influences.

Catalepsy,
Symptoms

Treatment. We are here concerned chiefly with the treatment of the acute cataleptic seizures, though the treatment given should be very beneficial toward preventing future attacks. Cataleptic seizures are only symptoms of the underlying nervous condition, which particular attention should be given toward relieving. For immediate treatment of a cataleptic seizure loosen the patient's clothing, supply ample fresh air, and dash cold water over the face

Catalepsy,
Treatment

and the chest. After this apply alternate hot and cold spinal compresses, three minutes for the hot and one for the cold, making four or five changes. Follow these with some or all of the back and shoulder movements to the spine. (See Volume VI.) This treatment may be sufficient to arouse the patient. In any case it will induce considerable relaxation.

If rigidity is extreme, a hot immersion bath may be used instead of the spinal compresses. This should be given at a temperature of 110 degrees or thereabout and be continued for ten or fifteen minutes. About two hours after this treatment a full hot enema may be given, to cleanse the bowels thoroughly. In some instances the cold sponge bath, or an ice-rub down the spine, or rectal dilation will arouse the patient to normal.

If the trance continues for several days the enema should be given each day and the spinal compresses and the manipulation applied once or twice a day. Of course, no food should be given during the attack, but water may be allowed if the patient is able to take it. After recovery from the seizure attention must be given to constitutional treatment.

It may be well to continue complete Fast No. 2 for a day or two longer. Then employ a diet of nothing but orange or grape-fruit juice and water, allowing as much as desired, for several more days. This may be followed by Milk Diet No. 3 for four to six weeks. It is a good plan when on the milk diet to take a daily neutral bath for thirty or forty minutes before retiring.

A normal solid-food diet may then follow the milk diet, giving special attention to raw foods. Vitality-Building Routine No. 2, and later No. 1, perhaps would be best.

Special attention must be given to the use of relaxation and auto-suggestion, practiced several times each day for ten or fifteen minutes at a time. The suggestions on *Neurasthenia* in Volume VIII also would be helpful.

CATARACT.—A disease in which the pupil of the eye, the crystalline lens, gradually changes to white or grayish instead of the usual black. It is progressive in character and is due to the fact that the lens loses its transparency, gradually becoming opaque. The development may progress for years, both eyes usually being affected, though it generally begins in one eye and subsequently appears in the other. It frequently develops in persons suffering from diabetes, though many people with no indications whatever of this disease develop it.

Sometimes it appears in children, but more generally is seen after the age of fifty. The disease always terminates in blindness unless surgical aid or constitutional treatment, or both, be adopted. All medical treatment or local applications prove futile, though

Catalepsy,
Diet for

Cataract,
Symptoms

ice compresses and vibratory massage may prove helpful, especially when combined with constitutional treatment.

Treatment. Probably the only hope that can be offered in advanced stages of this disease is found in surgery. In these cases the diseased crystalline lens is removed. However, when in its incipient stage the proper treatment for constitutional-upbuilding will frequently stay the progress of the ailment or bring about a definite and permanent improvement.

Cataract,
Treatment

In this constitutional-upbuilding process, first of all, is advised a fast adapted to the strength, vitality and weight of the patient, beginning with complete Fast No. 2. This fast should be followed by the fast-breaking routine adapted to the length of the fast. Milk Diet No. 1 as a rule will be very effective in the treatment of this disease, though the diet suggested in Fast-Breaking Routine 2A may be followed instead.

If the patient is above ordinary weight it might be well to follow a limited diet for a considerable time after the fast. Salad Diet No. 5 and 6 could be used, adding nuts after three or four weeks if desired. A general vitality-building routine, adapted to the strength of the patient, should be followed carefully.

Cataract,
Diet for

Long walks daily, deep breathing and various other methods for adding to the general vigor and vitality of the body are especially important. Special Manual Treatments 1 to 10 or Head and Shoulder Movements Nos. 1 to 11, would be a great help if taken at least three times weekly. On the days that this is not taken a wet-sheet pack of the entire body would be of value. Eye relaxation and eye exercises are also to be used. Some good results have recently been reported from the use of color therapy. Good bowel elimination is also helpful.

These simple methods should be tried in all cases before adopting surgical methods; or, even if surgical aid is finally called for, in advanced cases, the blood-purifying, strengthening routine suggested will add to any benefit derived through it. And, as previously stated, if the disease is in an incipient stage this method will do a great deal toward staying its progress or effecting a cure.

CATARRH.—A general term applied to acute or chronic inflammation of the mucous membrane, the distinguishing feature of which is a discharge of mucus ranging from a thin watery fluid to an offensive, thick mucus.

Catarrh

The majority of men and women apply the term catarrh to catarrhal derangements of only the nose and the throat. However, catarrh may attack any portion of the body where mucous membrane exists. In fact, the disease usually attacks the organ or portion of the body offering the most favorable outlet. (See *Bladder, Diseases of; Chronic Intestinal Catarrh*, under *Intestines*,



Nasal irrigation is performed by means of a special nasal douche cup, as shown, or an ordinary fountain syringe, with a special tip for the purpose or with merely a small rubber tip.

Diseases of; Nose, Chronic Catarrh of; and Chronic Gastritis, under Gastritis.)

The upper portions of the respiratory apparatus of the body are for the most part structures coated with delicate and sensitive membranes, so it is at these points that catarrh usually makes its appearance.

Catarrh of the throat is usually an "extension" of nasal catarrh, the "extension" being necessary in order that

the body may have a larger active eliminative surface. For the purpose of catarrh is the elimination of toxic elements from the body, the need for such a "disease" being due to an excessive amount of all food or certain foods and deficient general elimination.

Catarrh,
Causes

One of the principal *causes* of catarrh is the excessive clothing which civilized people wear. This retards the functions of the skin; consequently the pores are not capable of properly performing their work of elimination. One rarely finds catarrh of any kind among savage tribes or others who wear little clothing. This would indicate that to a large extent the disease is caused by too much clothing. The body wastes ordinarily eliminated through the pores are thrown back into the circulation and must find some other outlet.

The ordinary channels seem to be unable to eliminate them completely, consequently we find these poisons discharged from the mucous membranes of various parts of the body. Dry, superheated and poorly ventilated living and sleeping rooms and offices add to the skin sluggishness. Inadequate exercise is an important causative factor. So also is sexual excess, either natural or unnatural, by lowering the nerve tone. Sugars and starches are the greatest offenders among foods, but fats and proteins in excess, likewise, may produce sufficient toxemia to necessitate a catarrh.

Insufficient water drinking and constipation usually exist as part causes.

Treatment. The blood-purifying process that must be the most prominent part of the treatment of catarrh should begin, as in many other disorders, with a fast. This fast may be continued for a long or a short period, depending upon the vitality of the patient, and upon the amount of surplus nourishment in the form of flesh or fat he carries. Of great benefit would be Complete Fast No. 3 for two days, followed by Complete Fast No. 2 for as long as the patient apparently is showing improvement. For instance, if he is thin and weak, naturally this fast should be very short, perhaps only two to five days. If at or above normal weight, it might be continued ten or even twenty days.

Catarrh,
Treatment

The fast may be broken in accordance with instructions found in the fast-breaking routine applicable to the length of the fast. If below normal weight the milk diet is especially important. It should be used until the weight is nearer normal. In most instances, in changing from the milk diet Milk and Fruit Diet No. 1 for seven to ten days would be of advantage. It then may be followed by Salad Diet No. 6, which diet may be taken also when one is above normal weight. If business interferes with the above plan, Milk Diet No. 11 may be used and may be satisfactory.

After this dietetic experience foods should be selected that previous experience has proved can be digested without difficulty, though care must be exercised not to "stuff." The less one eats when suffering from catarrh, while maintaining strength and energy, the better will be the chance of eradication. Green vegetables and juicy fruits should form the main diet. Some meals should be exclusively of one or the other.

It is especially important in connection with this complaint to allow the air to come in contact with the skin as much as possible. Never wear tight clothing; always wear linen or cotton in preference to wool, as these materials will absorb the impurities eliminated more quickly and thoroughly and will better permit the air to reach the skin.

Catarrh,
Fresh Air
Needed

Remember that the less clothing one wears, both winter and summer, the greater will be the activity of the pores and, consequently, the less will be the likelihood of catarrh. This does not mean that one should wear so little clothing during winter that the cold will sap one's vitality; it means merely that one must avoid coddling at all times, yet (as a rule) have warm feet and hands.

Do not use too much covering at night; take every possible opportunity to secure a sun- and air-bath; once each day take a dry friction bath, thoroughly brushing the skin all over, continuing

this process until it is red from the acceleration of the circulation. In all cases it would be advisable to follow this friction bath with a cold bath as a means of still further accelerating the activities of the skin. Any sweating procedure given under *Water and Health* (Vol. VI, Sec. 2) may be used once or twice a week, always to be followed by a quick warm or hot rinse and a final tonic cold application adjusted to the known reactive powers.

Select a vitality-building routine adapted to the strength and follow it persistently day after day. Long walks and deep breathing are of special value. Natural sun-baths or constitutional doses of sunburn over the chest and the entire body by means of the ultra-violet light are highly valuable. Cold hip packs or cold sitz-baths if taken every other day will be of aid, partly through their reflex nerve influence and partly as a constitutional tonic, though they are not an essential element of the treatment. In short, keep in mind the idea that to cure catarrh one needs more vitality. Increased vitality means better elimination and purer blood—and often reduced weight. Proper skin activity and sufficient muscular action to insure healthy tissue throughout the entire organism are essential.

Catarrh,
Diet

The treatment of acute attacks of catarrh of various kinds appear under various heads in this volume. (Note references on page 3219.) Still, the general treatment for chronic catarrh may be used advantageously in all catarrhal difficulties, when the carrying out of the instructions given here does not interfere with the routine advised in special cases. For acute nasal catarrh see *Colds*.

CELLULITIS.—This is inflammation of cellular tissues, especially the loose connective tissue beneath the skin. The inflammation may be associated with pus formation. The cause is an excess of toxins in the body, sometimes complicated by infection. The symptoms and treatment are the same as for inflammation (see under the heading *Inflammation*).

Cellulitis

CEREBROSPINAL MENINGITIS.—This is inflammation of the membranes of the brain and the spinal cord. The cause of the disease is fundamentally a systemic toxemia. The condition often appears in epidemics and usually is associated with the presence of a particular germ. It may also follow or be a complication of tuberculosis, typhoid or influenza. See *Meningitis* for symptoms and treatment.

Cerebro-
spinal
Meningitis

The main factors of treatment are rest, fresh air, fasting, water drinking, enemas and hot baths, with cold applications, especially cold affusions, to the head and the upper spine.

CERVICITIS.—This is a condition in which there may be not only inflammation but also enlargement and ulceration of the neck of the uterus. The disease, which is very common, is in a large per-

Cervicitis

centage of cases due either to, or greatly aggravated by, excessive or incomplete intercourse leaving the organs congested and irritated.

Symptoms. The neck of the uterus in a healthy state is soft, smooth and of a pale-rose color. The opening or mouth is small and tight. But when the cervix is inflamed, the mouth of the uterus is more or less open, the lips parted and red. Usually the inflammation begins in the mucous membrane which lines the neck of the uterus, and which swells and becomes distended from congestion of the blood-vessels. If the inflammation affects the tissue composing the uterine neck, the latter becomes enlarged, hard and heavy and frequently projects farther than normally into the vagina.

Cervicitis,
Symptoms

The small glands situated in the neck of the uterus swell and show on the surface as reddish or whitish lumps or follicles. This phase of the disease, if not corrected, is likely to be followed by *ulceration*, which spreads upward and inward. It may take on one or more of several different appearances. There may be excoriations (raw spots), granulations or indurations (lumps or hard spots). Sometimes the inflamed parts will be red and hard, sometimes soft and soggy, bleeding at the slightest touch of the finger or even of cotton pledgets. There generally is dull, aching pain at the lower portion of the back, sometimes extending to the groins and the thighs, with a bearing-down feeling in the lower portion of the abdomen.

This inflammatory condition, which may be mistaken for neuralgia, produces considerable irritation of the nerves in that region. When ulceration is present there generally is a disturbance of the entire body. This probably is due to involvement of nerves of the sympathetic system. Menstruation is frequently affected also: it usually is more painful, in some cases it is more profuse, in others it is irregular and scanty; it may be postponed, protracted or even absent altogether for a time.

The stomach often suffers; in fact, the symptoms sometimes are referred to the stomach entirely, and disease of that organ may be suspected. The liver, the heart, and other organs may be disturbed more or less. There may be pains in the chest. In short, the entire organism may become affected through reflex nerve irritation to the entire nervous system, creating irritability, tension, and general nervous debility. Hysterical demonstrations are more or less common. However, when the local condition of the cervix is cured all of these distressing symptoms will disappear, if reflex effects of the cervical disease.

Treatment. In severe cases where there is ulceration or inflammation, it is best for the patient to be in bed. Walking or standing for protracted periods sometimes makes the condition worse. The same may be said of dancing, running a sewing machine by

Cervicitis,
Treatment

foot power and other more or less strenuous exercises. However, in some cases, where the inflammation is more or less chronic, special exercises (especially gravity movements) and walking may be of great benefit.

Where there is acute inflammation and where there is ulceration, hot douches and hot sitz-baths will be found of great value. The douches should be taken while lying down, using from two to four quarts of previously boiled water at a temperature of 105 to 110 degrees. Hot enemas also are soothing and can be recommended, especially if there is a tendency to constipation. The bowels must be kept open. If there is much fever the body may be sponged with cool water, or a cold wet pack may be used. See also *Uterus, Diseases of*.

CHANCRE.—See *Syphilis*.

Chancroid,
Causes

CHANCROID.—Chancroid is an ulcer, round, oval, or irregular in shape, usually found on the head of the penis or in the region of the prepuce. It discharges a purulent, highly infectious material and is very likely to give rise to other ulcers of the same nature unless especial care is taken in the treatment and in keeping the parts scrupulously clean at all times.

Chancroid is a venereal affection, always the result of contact with an infected person, usually with one of the lowest and most unclean types, for chancroid is especially a disease arising from filth. While it usually is found on the penis, it may be located upon any part of the body to which the infection is carried.

Chancroid,
Symptoms

Symptoms. Chancroid often is called *soft chancre*, to distinguish it from the primary sore of syphilis, which is known as *hard* or *true chancre*. The difference, which is suggested by these names, is that the syphilitic sore is indurated or hardened, usually is smooth, dry, glazed, secreting little or no pus and is painless; while the chancroid is soft, very quickly forms pus, is grayish, with uneven surfaces and rough edges, is surrounded by an inflamed area, is extremely painful, rapidly enlarges and becomes deeper and scooped out and sometimes gives rise to other chancroids in its immediate vicinity. In fact, it is usual to see two or more of these sores existing at the same time. It may result in the destruction of a great deal of tissue in a very short time.

A syphilitic chancre often disappears without treatment, or it may slowly develop into a scaly ulcer. (See *Syphilis*.) Chancroid rapidly follows exposure to infection and sometimes develops within twenty-four hours, but always within a week or ten days, while on the other hand a primary syphilitic sore or hard chancre does not develop until two to six weeks.

Chancroid, however, is a purely local affection, while hard chancre is the primary lesion of syphilis.

A chancroid which has become irritated by improper treatment may harden and simulate a chancre, so great care must be exercised in trying to discriminate between the two conditions. Of course, it is more than possible for a person to contract both chancroid and syphilis at the same time.

Chancroid commonly is accompanied by bubo, which means that the purulent matter has been carried by means of the lymphatics from the sore to the inguinal gland. But as a rule the infection will go no further. (See *Bubo*.) In severe cases a chancroid may spread, through ulceration, destroying the prepuce or the glans penis, or even the entire organ. It possibly may reach the large blood-vessels, causing general sepsis and death.

Treatment. In the treatment of chancroid, one must be mindful of the necessity for keeping the sore absolutely clean. For this purpose hot water and soap should be used morning and night and whenever possible absorbent cotton should be placed over the sore, not only for the purpose of absorbing the purulent discharge that comes therefrom, but as an additional precaution to insure cleanliness. The patient should wear a gonorrheal apron and dress the sore with echinacea cerate. The very free drinking of water is especially important.

Chancroid,
Treatment

Remember to cleanse the hands thoroughly after handling a sore of this kind, to prevent the spread of the infection to mucous membranes or skin of other parts of the body.

A limited dietetic routine should be begun immediately upon the first appearance of the ailment. For this purpose, Limited Diet No. 1 may be used for two to seven days; then Limited Diet No. 8 may be followed for several days; then use Salad Diet No. 6 until all symptoms of the complaint have disappeared, keeping in mind the necessity for drinking freely of pure water. Satisfactory activity of the bowels must be maintained. One should use sufficient bulky vegetables and fruits to insure this, or, if required, add bran and mineral oil to each meal.

Chancroid,
Diet in

On arising in the morning take a cold sitz-bath and on retiring at night repeat this, remaining in this bath as long as you can and still be able to recuperate with a feeling of warmth. If you cannot recuperate easily use a warm foot-bath in this connection.

The local application of a high-frequency vacuum or non-vacuum electrode (electrotherapy) will be of some benefit. If one can arrange to direct hot air locally this also will be helpful. The hot-water bag applied over a sterile hot wet cloth, or radiant light and heat may be used, depending upon facilities at hand.

Bubos nearly always are associated with this disease, so their treatment should be followed in detail, when it does not interfere with the treatment herein prescribed. See *Bubo*.

A wet-sheet pack at least three times a week would be of benefit in this disease. A steam bath once or twice a week also would be of great service in eradicating the poison. Long walks would be of special value in building vitality and thus assisting in the curative process.

In case the sore appears on the lips and affects the glands of the neck, then follow as nearly as possible the instructions given herein, though under these circumstances the sore should be washed more frequently and a mild antiseptic wash used daily in addition. In case the sore should linger for too long a period an antiseptic wash or "black wash" is often recommended.

Though the above general treatment may not cause the sore to disappear as quickly as will the use of powerful drugs, yet when it is once healed by these methods one can depend upon being rid of it forever.

CHANGE OF LIFE.—See *Menopause*.

CHAPPED SKIN (Hands, Face, Cuticle, etc.).—There is little need of describing the symptoms of chapped hands or face. Everyone is familiar with the fissures and cracks which manifest themselves in the skin, most frequently upon the hands and the lips, though sometimes also on the nipples. The skin becomes dry and rough and separates in various places, often leaving open gashes in which the raw tissue is exposed.

The causes of this chapping of the skin to a large extent point out definite methods of cure. If one is out in the open air a great deal, this might seem to be a prominent cause of the chapped skin. But if proper care were taken of the hands and face the wind could not possibly bring about such unpleasant manifestations.

The habit of using soaps strong with alkali, which remove a great deal of oil from the skin, is one of the prominent causes of this difficulty. Especially washing the hands and face in hot water in which this sort of soap is freely used is a common cause. Usually, however, lack of rinsing and perfect drying is perhaps the chief cause.

Treatment. The remedy is simple and will be effective in nearly all cases within a very short period. Before retiring at night wash the chapped surface with warm water and some good vegetable oil soap; imported Castile soap is very satisfactory for this purpose. Rinse well after cleansing. After drying the skin apply olive oil, mutton tallow, glycerin and water, or cold cream. The day after this treatment make the same application on two or three different occasions. If the trouble still persists, each night wash with soap and water and apply the fat as before. Be careful, however, when washing the chapped surface during the day, thoroughly to rinse the parts as previously suggested; in fact, it might be a

Chapped
Skin,
Causes

Chapped
Skin,
Treatment

good plan after the drying to make the oil application. In many instances proper care of this kind will remove all traces of chapping within a day or two.

Hot water relaxes the tissues and is inclined to add to the delicacy of their texture, while cold water hardens and strengthens. Whenever it is found to be necessary to use hot water for the sake of cleanliness, always end the washing process by using cold water for rinsing and thoroughly dry the skin before going out in the air, rubbing every part dry, not only with the towel but with the hands themselves, until absolutely all dampness has been removed. Under such treatment there will be little or no possibility of the skin becoming chapped.

When there are wide-open gashes, naturally healing will take considerably longer.

In many cases there may be constitutional causes for a dry skin. Under such circumstances constitutional treatment would be required. By following the general plan for constitutional upbuilding suggested in the various vitality-building routines given in Volume VI, one can confidently depend upon securing satisfactory results. The addition to the diet of more liberal allowances of wholesome fats, especially butter, cream and olive oil, will prove beneficial in most cases. Nude sun- and air-baths in summer usually will make it possible to avoid this trouble in cold weather; and artificial sunlight in winter will help correct the condition.

CHEST, DISEASE OF.—Any acute disease of the heart or the lungs or of the muscles, nerves or skin of the chest might be called an acute chest disease. However, the only abnormalities usually included under this heading are those of the bronchi, lungs, and pleura.

Chest, Acute
Diseases

Chronic diseases of the chest include Bronchitis, Pleurisy, Tuberculosis, and Emphysema. These are discussed in their alphabetical positions.

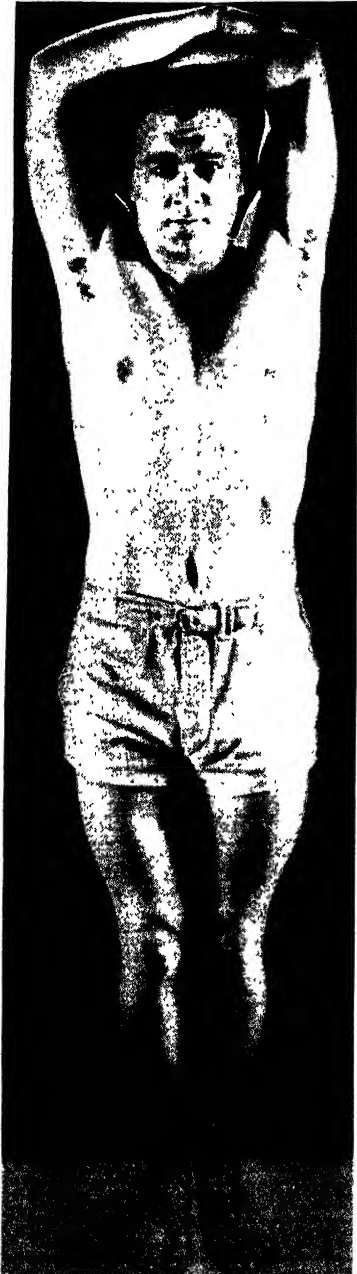
Chest,
Chronic
Diseases

CHICKEN-BREAST.—Chicken-breast is a deformity in which the breast-bone (sternum) assumes a shape somewhat like the breast-bone of a chicken; that is, it is bent forward and appears unduly prominent.

The condition develops in infancy and may be due to some interference with normal respiration, to rickets or sometimes to spinal deformity resulting from Pott's disease, which prevents normal development of the ribs and the entire chest cavity. As the bones harden as the child grows older the sternum becomes set in its abnormal form so little can be done to change it. Little can be done after the child attains full growth but the chest and the muscles may be so developed as to render the deformity much less noticeable. Chicken-breast seldom interferes with the health,

Chicken-
Breast,
Causes

Chicken-Breast,
Treatment



Chicken-Pox.
Symptoms

For Chicken-Breast. With arms clasped overhead, the body is rotated from the waist as nearly around as possible. Now turn body and repeat.

so attempts at correction are mainly to improve the appearance.

Treatment. If proper measures are instituted as soon as the deformity begins to appear and while the child is yet growing, much improvement may be expected. The exact measures required will depend upon the condition present. See *Rickets* and *Spine, Diseases of*. In all cases, however, attention should be given to the diet and to all general health building measures. The body must be properly nourished in order that the bones may grow normally; so sunlight, exercise, fresh air and rest are particularly necessary to insure adequate assimilation and development. Plenty of milk should be included in the child's diet. Green vegetables and whole grain cereals are also important. Deep breathing and general shoulder, chest and back exercises should be taught the patient, who should practice them regularly. (See Volume VI on Exercise.) A special exercise for this trouble is illustrated herewith.

In adult cases deep breathing and exercise are the important factors, since improvement in appearance is about all that can be expected.

CHICKEN-POX (*Varicella*).—A mild acute eliminative crisis often occurring during childhood, but sometimes found in adults. It is communicable to another if one is in a toxemic condition and hence in need of such extra elimination.

Symptoms. There is a period of incubation of ten to seventeen days. Then the symptoms begin to appear, the most marked of which is the eruption. This generally appears on the first day of the disease and the

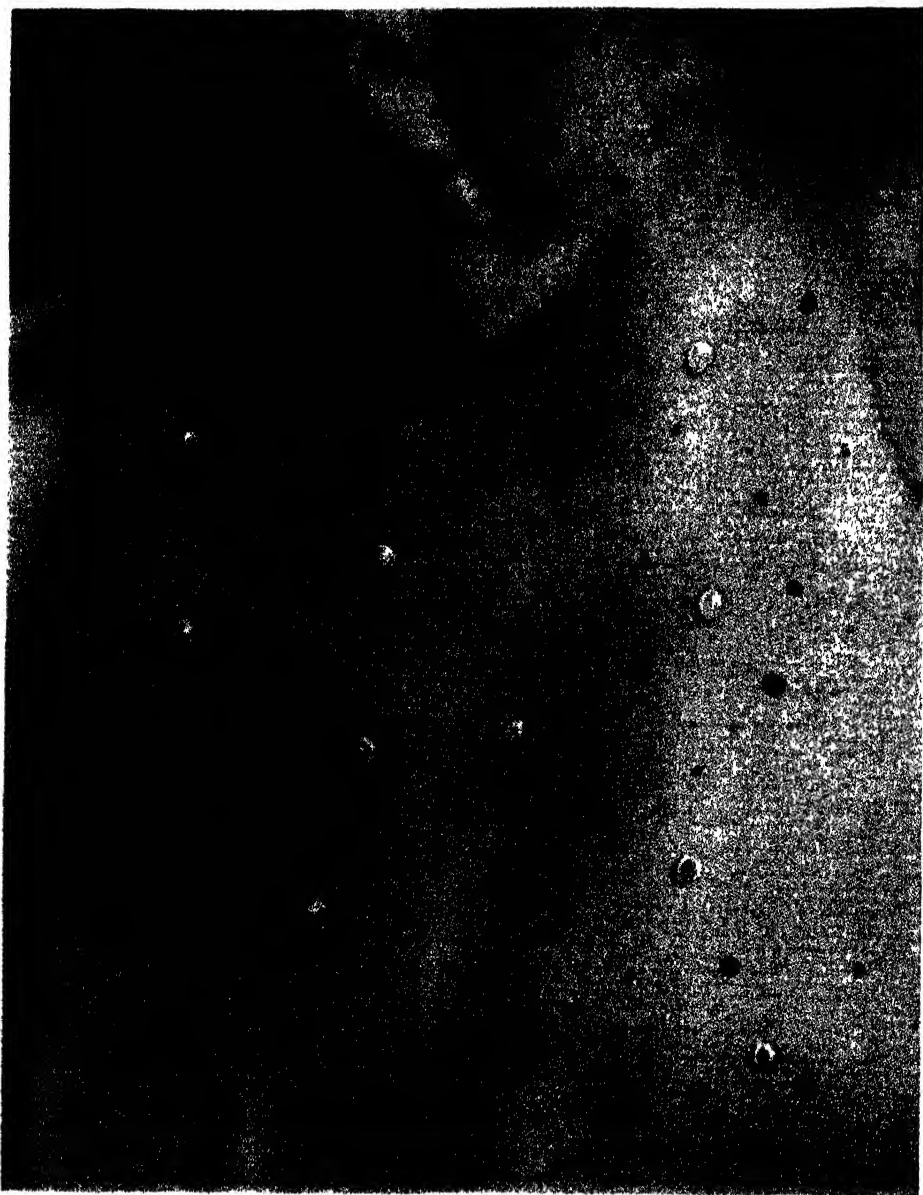


PLATE 96. Typical case of varicella or chicken-pox with eruption in its different stages of papules, vesicles, pustules and scab.

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distribution, when the disease is fully developed, is as follows: the trunk and the scalp are the most affected; then the face and the limbs, and of the limbs the parts nearest the trunk are more affected than the distant parts. A few vesicles may be found on the hard palate.

The eruption begins in the form of little red papules which, within a very short time, change to vesicles containing a clear serum. The skin around these vesicles is normal or slightly reddened. In two days the vesicles become pustules which dry up after discharging, leaving a scab which falls off in the course of a few days. Itching often is severe. Unless the patient refrains or is restrained from scratching, scars or what are called pock-marks are practically certain to result, as they often do even without their having been scratched.

**Chicken-Pox,
Symptoms**

Though the eruption is the most marked symptom, other symptoms are headache, fever, pains in the head and back, nausea and vomiting.

The duration of the acute stage is about six days or longer, but the duration of infectivity is until all the scabs fall off, with none re-forming.

The difference between the chicken-pox and the smallpox eruption is that the former presents superficial vesicles that are round and full and contain a transparent or milky fluid which makes them look like little water-blisters, while smallpox pustules are round, deep-seated, indented and yellow, and are of much slower development. Another important point is that when a chicken-pox vesicle is broken it is found to be a single vesicle, while rupture of the vesicle of smallpox shows that it is composed of several smaller cells. In smallpox the general symptoms are very much more severe than in chicken-pox.

Treatment. If prompt treatment is adopted at the first sign of this disease most of the general symptoms can be avoided except the skin eruption. This being one of the first symptoms to appear, it generally is fairly well established before treatment is started. Hence, it will be likely to run its course of five to seven days, though the child may be perfectly well otherwise during the last few days. There is no necessity for the disease to continue for the customary two weeks.

**Chicken-Pox,
Treatment**

As soon as the symptoms are noticed a full moderately warm enema should be given, repeated each day of the fast and continued thereafter as necessary until normal movements are obtained. No food is to be given, but as much water as the patient will drink. A plentiful supply of fresh air is very important and rest should be enforced while there is fever. The fast should continue until the fever is gone, which is usually in two or three days. The milk

3230 CHICKEN-POX—CHILBLAINS

diet preceded by one day on oranges or orange and grapefruit juices should follow and continue during convalescence. Babies may be allowed a little orange juice instead of requiring them to fast strictly.

In most cases these measures will be all the treatment required. If the symptoms are unusually severe, a cold wet-sheet trunk pack may be given. If there is much itching of any particular part, local cold wet compresses may be applied as needed. Instead of renewing, these should be merely sprinkled with water as they become dry, to continue the soothing effect of the cold. They should not cover a large surface of the body at any one time, or a very detrimental internal congestion will result. Also as soon as the itching is relieved they should be removed. Instead of a cold pack a neutral bath may be given daily.

When these simple measures are used chicken-pox will be but a small incident in the life of any child. Rarely will a child need to go to bed with this ailment, if rightly treated.

Chilblains, Symptoms
CHILBLAINS (*Pernio*).—A localized dermatitis or skin inflammation with swellings of the joints, usually of the knuckles of the hand and of the toes, accompanied with intense itching and sometimes with considerable pain. It is more frequent in females than in males and is especially common in anemic children. When the disease begins the skin shows a sharply defined, reddened condition, which disappears on pressure but immediately returns. The inflammation is caused in those whose circulation is poor by cloggy capillary circulation, due to paralysis of the blood-vessels by exposure to cold. Chilling with much cold water may induce the trouble in those of very poor circulation. When neglected, sores, fissures and crusts may form and degenerate into ulcers. In some cases vesicles or pustules may form.

Chilblains, Treatment
Treatment. The treatment will depend largely upon the severity of chilblains. Naturally, acute symptoms when very severe, as in the partial freezing of the tissues of the body, require prompt and definite measures in order to avoid unpleasant and, in some cases, serious results. For instance, if one should freeze his feet and then place them near a hot stove, gangrene might develop and even a part of the foot might slough off as a result.

When one has been exposed to severe cold and he feels that there is danger of frozen feet, hands, ears or any other part of the body, the circulation should be restored gradually by applying naturally cold water and raising the temperature of the water and applications very slowly; in fact, if badly frozen this restoration should be a matter of hours, so as to avoid unpleasant effects. See also *Frost-Bite*, under *First Aid in Accidents and Disease*, Sec. 5.

If one is treating the after-effects of exposure to cold, such as

chilblains, the best method is to wrap the affected part in cold wet packs at night before retiring, and allow these to remain on all night. For instance, if the feet are affected, simply wrap them in cold wet cloths and cover lightly with dry flannel.

General and local tepid baths, cold affusions and graduated cold baths, gentle massage and moderate exposures to sunlight or artificial sunlight all are beneficial. So also are the following: repeated dipping of the feet in hot water followed by cold for twenty to forty seconds; rubbing each foot with the other until red while standing in flowing cold water. Stockings and gloves must be soft but warm and they and shoes must be amply large.

Chilblains,
Preventive
Treatment

Naturally, under such circumstances, one's constitutional condition will be of some importance, so if one is suffering from any disease, or if there is serious indication of vital depletion, a general vitality-building routine adapted to one's needs and a sensible diet which will definitely nourish and still not mean overeating, will be of very great value. Cod-liver oil will be helpful. Treatment by means of Leg and Foot Movements Nos. 1, 2, 12, 13 (see Vol. VI, also general manipulation applied to the toe-joints) and vigorous rubbing of the parts will be of great advantage, for it is important that the best possible local, as well as active general circulation should be established.

If an ulcer forms as the result of chilblains the blood contains foreign elements of various kinds and requires definite treatment for purification. Under these circumstances, the detailed treatment for vital depletion (see Vol. VIII) or for any of the diseases that indicate the need of an improvement in the quality of the blood would be of distinct value.

CHILDBIRTH (*Labor; Parturition*).—Childbirth usually occurs about 280 days after the date of last menstruation; if it should result much earlier the birth is considered premature. The symptoms which precede the act of childbirth are contractions of the uterus, muscular pressure upon the abdomen and the opening of the uterus, all these produce griping, lancinating pains in the abdomen, and more or less aching in the back. These come on at first at intervals of an hour or half an hour, then at briefer intervals until finally they become almost continuous. There is a frequent desire to pass water and to evacuate the bowels. This is the *first stage of labor*.

Childbirth,
First
Stage

The duration of this stage varies. But in an average labor of twelve hour's duration it may last for ten hours, the second stage being accomplished in an hour or forty-five minutes, and the third and final stage in about fifteen to thirty minutes. Most obstetricians agree that a labor which is terminated spontaneously within 24 hours may be considered to be normal.

Childbirth,
Second
Stage

The second stage of labor. The pains change and the character of the expulsive efforts is altered. They now become what are called bearing-down pains, in which the mother endeavors to hasten the birth of the child by a straining movement. Following more or less severe pain due to the pressure of the fetus, the child's head is forced through the distending vulva and finally, with an unusually forcible pain, the baby's head emerges. As a rule the next pain expels the shoulders, and the rest of the body then emerges with comparatively little suffering.

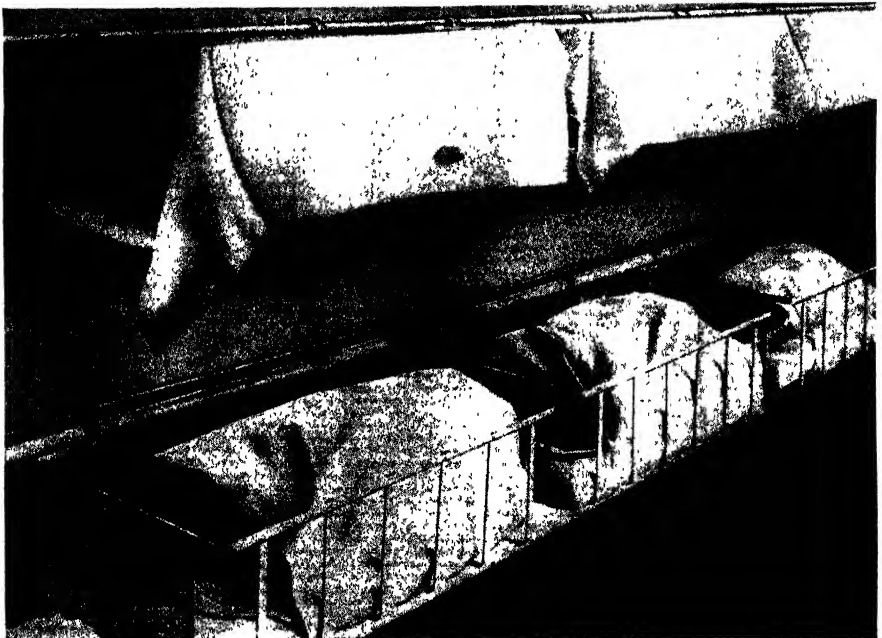
Childbirth,
Third
Stage

The third stage of labor consists in the delivery of the placenta or after-birth. As a rule but little pain is incident to this stage.

There are diseases which may attend the birth of a child or directly result therefrom (see *Puerperal fever*) and many accidents, such as tearing of the perineum (the tissue between the vagina and the anus) occur. But the possibility of such occurrences may be minimized with proper living habits during and also before pregnancy. When they do occur they should be attended to promptly by the physician in charge.

For detailed information on childbirth see Volume IV.

CHILDREN, DISEASES OF.—Almost any disease which affects adults may also affect children. But the ailments generally in-



PHOTOGRAPH EWING GALLOWAY

Infants in their cradles in a maternity hospital. Note the absence of pillows.

cluded under the heading of children's diseases include only those acute, eliminative crises found more frequently among children than among adults, particularly croup, chicken-pox, diphtheria, measles, mumps, scarlet fever, and whooping-cough. Full discussion, with the proper treatment, of these various diseases, will be found under their own headings.

Children,
Diseases of

Some of these conditions, however, require several days before an accurate diagnosis can be made. If treatment is postponed so long the child will be placed under a serious handicap. On the other hand, if treatment is begun immediately upon the first indications that a child is ill or indisposed the symptoms will generally be so reduced in variety and severity that they will not assume any characteristic form, and it may be impossible to make any specific diagnosis. But this is no drawback, since all these acute reactions of childhood are due to the need for extra elimination.

Practically all children are overfed and proper attention is rarely paid to elimination, hence they need some unusual form of elimination almost periodically. On the other hand, all these ab-



Vomiting may be induced in the child, as well as in the adult, by inserting the finger into the upper portion of the esophagus.

normalities can be avoided if the parents are particularly careful in bringing up their children.

Children's
Diseases,
Treatment

Treatment. From the standpoint of natural methods of treatment it is not necessary to know which particular disease is present. The characteristic symptoms which appear will indicate what needs to be done. Frequently there are nausea and vomiting, indicating the need for cleansing and resting the stomach. This is readily accomplished by having the child drink as much hot water as it will, after which the finger is placed in the throat to induce regurgitation. Either constipation or diarrhea will be present in every case. Both indicate the need for bowel cleansing.

One of the first things which should be done in every children's disease is thoroughly to cleanse the lower intestines by the use of an enema. If not much water can be retained at a time, the injection may be repeated several times. If the feces are very hard it is advisable to inject two or three ounces of oil before using the water enema. The water will then force the oil high up into the intestines to soften the hardened material so that it will be more readily eliminated.

If the symptoms are severe it is permissible to give a saline or herbal laxative on the first day, in order quickly to cleanse the upper intestines as well as the lower bowel. In the case of babies, milk of magnesia may be sufficient. Drastic purges, such as castor oil, should never be used, except in extreme cases upon the advice of a doctor.

After the initial cleansing the enema will take care of further elimination needs. No attempt should be made to check diarrhea. The free drinking of water and the use of enemas will soon remove the offending material and the diarrhea will stop of itself.

Children's
Diseases,
Fasting in

Since the appetite is lost in these acute diseases, the avoidance of food is clearly indicated. Sometimes there may be an appetite for orange juice or other fresh fruit juices, so if the symptoms are not too severe these may be permitted, but never sweetened. Nothing else should be allowed, however, until the acute symptoms have subsided. Some parents are afraid to fast their children, but this fear is absurd. When there is no appetite, Nature plainly indicates that food should not be taken. It is more dangerous to eat at such a time than not to eat at all. Rest is always indicated if there is fever, and an ample supply of fresh air is a vital necessity.

When these treatments are properly instituted there is very seldom any need for other measures. However, if the symptoms are severe, various hydiatric measures may be used to advantage. If the fever is very high or if there are skin eruptions, cold wet-sheet packs may be employed, either generally or locally to the chest, the abdomen, or both. The cold neck pack gives great



PLATE 97. Chlorosis is a form of anemia, especially prevalent among young women at puberty.

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relief where there is sore throat. Pain and local inflammation practically always are relieved by the use of hot compresses.

Milk is the food of childhood and generally is indicated during convalescence from many acute diseases. If the complete fast has been used, one day on oranges should precede the milk. Milk Diet No. 1 or No. 3 may then be used, employing the latter if the milk is pasteurized or not of the best quality. Nothing but milk and fruit should be allowed until normal weight and strength are regained. The milk is the simplest and easiest diet to employ. It meets all needs and makes it easy to avoid the tendency to overeat, which often follows the fast in the case of children. Special care should be observed during and following any acute disease to see that the child gets plenty of fresh air and sleep. Normal childhood activities should be taken up gradually.

Children's
Diseases,
Diet in

CHILLS.—Chills generally indicate the beginning of some disease, especially one in which there is fever. A chill may sometimes follow shock, severe nervous strain or childbirth. In most cases the chills subside of themselves within a few minutes; but since they generally indicate the approach of some acute eliminative crisis it is well to begin eliminative treatments. Accept the chill as a warning to immediately institute curative procedures.

Symptoms. The occurrence of chill usually is preliminary to the onset of some sudden, acute condition, although chills may occur in certain nervous as well as toxemic conditions. When a person has what is called a chill, a feeling of intense coldness of the surface of the body occurs, there is a shivering or shaking of the entire body, together with a chattering of the teeth. Goose-flesh is likely to be present in the skin, frequently the eyes become bloodshot and the lips, finger nails and sometimes the cheeks become bluish or cyanotic. Headache is common during or immediately after the chill. The chill, however, is usually a symptom of some other condition and is not of itself a disease.

Chills,
Symptoms

Treatment. The most important measures to employ are the full hot enema to cleanse the bowels, the free drinking of hot water and the use of a hot immersion bath or hot-blanket pack or other convenient means of applying heat generally to induce free perspiration. These measures may not only quickly overcome the sensation but will assist in removing the causes and preventing the further development of whatever symptoms have been on the way.

Chills,
Treatment

CHLOROSIS (*Green-sickness*).—Chlorosis is a peculiar form of anemia usually found in young girls. It is called green-sickness because in those suffering from it the skin usually assumes a peculiar greenish hue. This condition develops, as a rule, in girls of feeble constitution or imperfect development. Young women who are

Chlorosis,
Causes

inactive, or of sedentary habits and who live a generally unwholesome and unhygienic life are subject to this disease. The blood becomes much impoverished, loses part of its hemoglobin and its red blood-corpuscles, and increases its watery constituents. Those who develop chlorosis are said to be inherently well-sexed.

**Chlorosis,
Symptoms**

~~The special symptoms of chlorosis are the pallor and greenish~~ color of the skin, sluggishness of the bowels, indigestion, loss of appetite, general weakness, nervousness, coated tongue, dizziness, headache, reticence, loss of ambition and vitality and often retention or suppression of the menstrual flow. For treatment see *Anemia*.

**Choking,
Treatment**

CHOKING.—This is a sudden stoppage of the breath due to some obstruction in or pressure upon the trachea. It sometimes is caused by swallowing an object which, being too large for the throat, lodges in the gullet and obstructs the windpipe directly. Choking from any cause requires immediate action. Slap the patient on the upper back two or three times. If this is ineffective try to remove the offending substance. If in a child, turn him head downward and slap between the shoulders. If not successful, pass a finger back into the throat and attempt to dislodge the substance. Though this may fail directly, it may induce vomiting, which may dislodge the obstruction. Meat or other large soft substances may be pushed back into the throat with the finger, allowing the patient to breathe and relieving all immediate danger.

Fish bones, if so fine they cannot be extracted by a pair of forceps, may be forced downward by administering the unbeaten white of an egg, or a bite of bread. See *Choking* under *First Aid in Accidents and Disease*, Sec. 5. Often a sensation as of a foreign body in the throat is due to temporary lodging of or scratching by such an object. The sensation leaves within a few hours. Choking due to pressure by abnormal growths or other disease conditions will be taken care of by the treatment of the primary disease. In these cases proper treatment will act as preventive. See *Asphyxia*, in *First Aid in Accidents and Disease*, Sec. 5.

**Cholera,
Varieties**

CHOLERA.—There are two types of cholera: *Cholera asiatica*, Eastern in origin, rarely met with in the western hemisphere, excepting in times of plague; and *Cholera morbus*, an acute gastro-enteritis with similar symptoms, caused by indiscretions in diet.

**Cholera,
Asiatic**

Asiatic cholera is epidemic in the tropics. Its prevalence is greatest in India, hence one name, Indian cholera. It also is called epidemic cholera, malignant cholera, and pestilential cholera. In temperate zones it occasionally occurs in epidemic form, usually being brought in from some country where it is endemic. Its development is favored by hot weather. All ages are affected, and one attack does not give immunity.

Like all large epidemics cholera is a water-borne disease and is spread in this manner. Polluted drinking water is the most common source of infection. Vegetables and other foods washed in infected water also may convey the disease, so one valuable way to avoid infection is to use no unboiled water and no raw vegetables or fruits in countries where and at times when cholera is present, unless these are thoroughly washed in water that has been freshly boiled and cooled. Cholera asiatica is caused by infection by the cholera bacillus, in connection with a depreciated resistance.

**Cholera,
Causes**

Cholera morbus (also called bilious cholera, *Cholera nostras*, European cholera, simple cholera, sporadic cholera, and summer cholera) is an affection the symptoms of which resemble, in far milder form, those of Asiatic cholera. The diseases differ in that the Asiatic cholera is an infection while the other is not. There is not so much danger attached to this ailment (*Cholera morbus*) as is generally supposed, though the symptoms may cause grave anxiety.

**Cholera
Morbus,
Symptoms**

Symptoms. Before the onset of this disease there may be a period of slight diarrhea and general malaise lasting for a few hours to a few days. The disease is generally described from a symptomatic standpoint as being divided into three stages, namely, (1) The stage of diarrhea; (2) The stage of collapse; (3) The stage of reaction.

(1) The onset is usually abrupt, coming with severe colicky pains followed by vomiting, which often becomes continuous. In the muscles, especially in those of the legs, there are cramps which may be very severe. There is great thirst. The evacuations are at first yellow, rapidly changing to white. These last are known as rice-water stools. They usually are odorless if frequent and there is no straining. The pulse is very feeble, the temperature subnormal and there is progressive exhaustion. The disease may not progress beyond this first stage, from which convalescence may set in.

(2) If the disease progresses it passes into the stage of collapse. In this stage there are extreme weakness, pinched face, sunken eyes, wrinkled skin, cold and clammy perspiration, bluish color of the skin, restlessness and sometimes coma. The pulse is very rapid and may be so weak as not to be felt at the wrist. The watery diarrhea continues, and there may be anuria. As a rule the temperature remains subnormal. This stage lasts from a few hours to one day.

(3) If death does not take place the patient begins to convalesce and the stage of reaction sets in. There is rapid improvement, the skin becomes warm, the stools less frequent, the normal color of the ejecta begins to return, the coma disappears, the temperature rises and there may even be some fever. Convalescence is rapid.

**Cholera,
Treatment**

Treatment. The symptoms of the various kinds of cholera plainly indicate the need for thoroughly cleansing the alimentary tract with enemas or colonic irrigations of mild soda bicarbonate solution or other non-irritating antiseptic and giving as much assistance as possible to all the depurating organs.

Complete Fast No. 3 should be immediately instituted at the start of symptoms. The water should be taken hot, as it helps to support the vital activity of the body and it should have been previously boiled. However, if there is much fever and it is especially desired, cool water may be allowed. In Asiatic cholera the cold water should be flavored with lemon juice. This may also be permitted if desired in *Cholera morbus*. The large quantities of water make vomiting easier and more quickly cleanse the stomach, thus hastening ease of this organ.

The water can then be retained and in passing down through the intestines will assist in cleansing the remainder of the digestive tract. A full warm enema should be given once each day, further to cleanse the colon. Soda bicarbonate water would be advisable for the enema, using a tablespoonful of soda to each quart of water. The patient should have complete rest and abundant fresh air twenty-four hours a day.

**Cholera,
Hydro-
therapy in**

A complete hot-blanket pack may be given on the first day of treatment in cases of Asiatic cholera, but may be omitted in *Cholera morbus*. In the latter form the hot abdominal pack may be used. It may be employed also after the first day in Asiatic cholera. The hot-blanket pack should be continued to the point of free perspiration, and the hot abdominal packs are allowed to remain for about two hours, retaining heat with hot-water bottles. A cool sponge of the parts covered always should follow the removal of the pack. From three to five hours should be allowed between the application of the packs and giving the enema, as it is important not to exhaust the energy of the patient.

Absolutely no food should be given until all the acute symptoms subside. It would then be well to remain on a fruit diet for three or four days, taking nothing but the juices the first day or two and the fruits thereafter. Lemons, oranges, grapefruit and grapes are the best to use, or Fruit Diets No. 3 and No. 7 are suggested. Much of the patient's exhaustion is due to loss of water from the body, a loss that can be readily repaired without taking solid food. After the diarrhea has ceased the patient will be found to pick up very nicely even though he takes nothing but fresh fruits.

Since it generally is difficult to obtain a satisfactory supply of milk in countries where Asiatic cholera is likely to be met with, a solid-food diet usually will be required after the fruit, employing mostly fruits, vegetables and nuts, adding moderate amounts of

whole-grain products after about a week. The greatest care must be observed not to overeat. Since the digestive organs will have been considerably weakened they must be given time for recuperation.

Plenty of water must be taken between meals. Enemas should be employed as necessary until normal movements are obtained. In *Cholera morbus*, the milk diet should follow the fruit whenever possible to arrange for it. This will bring about quick recuperation. Vitality-building routines suited to the strength of the patient should be used after either disease.

The treatment of *Cholera morbus* is very simple, calling for complete abstinence from all food until the symptoms subside, the free drinking of hot water, one full, moderately hot enema each day and the daily hot abdominal pack.

**Cholera,
Fasting in**

CHOLERA INFANTUM.—This is an acute eliminative crisis closely resembling Asiatic cholera, which affects children, especially those under two years of age. The common name for this disease is "summer complaint," being called so because it occurs mostly during the hot weather when foods are likely to undergo decomposition easily. There may be bacterial invasion through infected milk or other foods; but usually undernutrition and poor hygiene lower the vitality of the child before the bacteria are received. Children of poor families suffer most.

Symptoms. The symptoms of this condition may be very severe and call for immediate treatment. The onset usually is sudden. There may be convulsions or twitchings of the muscles of the face, the extremities or of the entire body. There are vomiting (which often is severe and persistent), fever (103 to 105 degrees), cramps in the abdomen and tenesmus or straining before and during bowel movements. At the onset of this disease the legs are flexed upon the abdomen, which is hard and tense. Later the tenesmus disappears.

**Cholera
Infantum,
Symptoms**

The stools are very numerous, sometimes as frequent as every few minutes, fecal at the beginning but later very watery, containing mucus and occasionally a little blood. The mucous membrane around the anus becomes excoriated and sore, the patient suffers from thirst and stomatitis or inflammation of the lining membrane of the mouth is common, as also is scanty urine. The body wastes away very rapidly, the face becoming pinched, the soft spot in the top of the head (in babies) being depressed and the eyes sunken and the skin is pale, cold and dry. The mortality is quite high, the children dying from extreme exhaustion and collapse.

Treatment. The symptoms plainly indicate that every assistance should be given the body in eliminating the offending poisons, hence the symptoms should not be suppressed. At the first sign

**Cholera
Infantum,
Treatment**

of trouble all feeding should be stopped. Vomiting should be encouraged, by an emetic if necessary. The bowels should be thoroughly cleansed with enemas. The child should be encouraged to drink as much naturally cold water as it will take. This may be flavored with lemon, or, if the child will not accept this, with orange juice.

Lemon juice or salt may also be placed in the enema water in the proportions of one lemon or one teaspoonful of salt to a quart of previously boiled water. An abdominal pack should be administered daily. This may be hot on the first day, but cool thereafter, as there is likely to be considerable fever. If the child becomes quite weak, alternate hot and decidedly cool spinal compresses, making several changes, may be administered daily. Rest and an abundance of fresh air are necessary.

When the acute symptoms have subsided, barley water and flaxseed tea flavored with honey and lemon juice may be allowed as desired for one day. After this the diet should consist of nothing but freshly pasteurized milk and the juice of an orange each day, though if raw milk of unquestioned quality can be obtained this would be better than the pasteurized to use. Soured milk, or for a while whey, may be used to advantage if the child will take it, also fresh milk by the addition of fresh lemon juice. Care must be observed not to overfeed, especially during the first three days after the fast is broken. Every effort should be made to surround the child with a proper environment of fresh air and sunshine. Strict cleanliness also is essential. See also general methods of treatment in *Children's Diseases*.

Chordee,
Treatment of

CHORDEE.—This is a painful erection of the penis occurring very often in gonorrhea. Chordee can scarcely be termed a disease in itself as it is a result of the gonorrheal infection. Often it can be prevented by taking a hot sitz-bath before going to bed and then applying a cold pack, the sitz-bath to be taken for five minutes, followed by a brief cool sponge, and then the cold pack being applied and bound in place with a bandage. The "T"-bandage may be used. (See *Compresses* under *Water in Health*, Vol. VI, Sec. 2.) If this fails to produce results the pack may be removed and a cold compress applied until relief is obtained. An application of cold to the nape of the neck may also prove helpful. Chief treatment should be directed toward the gonorrhea, for a full discussion of which see under that heading.

CHOREA.—See *St. Vitus's Dance*.

CHOROIDITIS, ACUTE.—An inflammation of the choroid coat of the eye. See *Eye, Diseases of*.

Circulation,
Defective

CIRCULATION, DEFECTIVE.—Poor circulation may be regarded in the light of a disease condition, inasmuch as it indicates defective

functioning and lowered vitality. Usually it is indicated by a tendency to cold hands and feet under ordinary circumstances and lack of color or excess of color in the face, perhaps these two conditions fluctuating. Sometimes there is a mottled or somewhat purplish appearance of the hands, wrists or other parts of the body. It is a common accompaniment of neurasthenia and vital depletion, also of weakness of the heart and numerous other organic or serious functional disorders.

Treatment. Muscular exercise is the most important factor of the treatment and should be given special attention. Next to this, however, cold baths offer a highly valuable means of improving the circulation, especially when following natural or artificial sun-baths and, occasionally, some sweating procedure, particularly an electric-light cabinet bath. Air-baths and dry friction baths are also of inestimable value. (See these subjects in Volume VI.)

Circulation,
Defective,
Treatment

In connection with these, a suitable dietetic and general vitality-building routine should be adopted. It is important at all times to maintain due warmth of the extremities. If hands and feet are cold following a cold bath, it indicates poor recuperative powers. (See Volume VI.) The general routine advised in the case of Vital Depletion in Volume VIII is suggested.

CIRCUMCISION.—This is the name given to an operation which consists in removing a part of the foreskin of the penis and thus uncovering the glans or head of that organ. This operation appears to have originated as a religious rite and as such is still in practice among the Hebrews and the Mohammedans.

It is recommended very largely by physicians as a sanitary measure. But although there are many cases in which it undoubtedly is necessary and beneficial, yet in normal cases it is not at all necessary. For if the foreskin can be drawn back so the glans and the space beneath it can be kept clean there should be no need, from a strictly sanitary standpoint, for the operation.

But in those cases where the foreskin or prepuce is too tight, or where it is adherent to the parts beneath and cannot be drawn back for cleansing the glans and other parts, the operation should be done as soon as possible. (See *Phimosis*.) It must be borne in mind, however, that the glans penis is a very sensitive and delicate structure, unusually well supplied with nerves and blood-vessels, and that the foreskin is designed as a protection.

Circumci-
sion, Indica-
tions for

It has been claimed that circumcision renders one less prone to contract venereal diseases. This does not seem to be borne out, for gonorrhea attacks the mucous membrane lining the urethra and circumcision probably has no influence upon this one way or the other. Of course, it can have no protective influence against syphilis. The claim is made that exposure of the glans penis has

a tendency to render this organ less sensitive than when covered by the foreskin. This probably is true. Circumcised children may be less likely than uncircumcised ones to fall into bad habits.

The question of cleanliness seems to be the important one in this matter. This is largely determined by the personal habits of the individual, whether he be circumcised or not. Yet, while the operation is not needed in those of clean habits, it can be safely recommended in some cases as a purely hygienic measure.

CIRRHOSIS OF THE LIVER.—See *Liver, Diseases of*.

CLAW-HAND.—A claw-shaped condition of the hand due to muscular atrophy and contraction of the tendons. Treat as for *Muscular Atrophy* (which see).

CLEFT-PALATE.—See *Harelip*.

CLIMACTERIC.—A period of life marked by decided physiological changes, such as puberty and the menopause. Usually it is used synonymously with the latter, which see, also *Change of Life* (Vol. IV, page 1869).

Club-Foot,
Causes and
Varieties

CLUB-FOOT (*Talipes*).—A term applied to a deformity of the foot produced by paralysis of certain muscles of the legs. There are several varieties of club-foot, each one producing its own particular deformity. It may be congenital or acquired. Neglect to treat the defect at its beginning results in the patient being compelled to walk upon some part of the foot other than the heel and the sole. Thus in the various forms the individuals so affected may walk on the heel, or the toe, or the inner margin, or the outer margin of the foot, or there may be combinations of some of these. Cure depends upon early treatment.

Club-Foot,
Treatment

Treatment. If begun when the disorder first appears or is first observed in early infancy the treatment of this deformity outlined here often produces beneficial results. It consists, first of all, in using the special exercise treatments described in Volume VI. Treatment is directly to the affected part; that is, moving each affected joint in every possible direction, stretching all the ligaments and tissues, together with vigorous exercise of all adjacent parts. By studying the movements given under the head of *Leg and Foot Movements* for bringing into active use the tissues around the joints which one is desirous of treating, one will be able to learn the special movements that should be of value in the treatment of this particular ailment. In addition, all of the movements for the foot and the ankle should be used persistently.

Naturally, in connection with this difficulty there sometimes is more or less general weakness. Therefore, it is essential to give attention to some general routine for increasing vital strength. All the various movements that will add to the strength of the spine will be of especial value. These will add to the nervous en-

ergies and resiliency, and therefore improve all parts of the body.

Especially to be recommended are Special Manual Treatments 11 to 16, and Self-Applied Exercise Movements 1 to 6 as a means of building up spinal vigor. See also *Pes Equinus*, and *Talipes Calcaneus*.

COCAINE-POISONING, ACUTE.—Acute poisoning with cocaine generally is accidental. For symptoms and emergency treatment see *Poisons*, under *First Aid in Accidents and Disease* (Sec. 5). For habitual use of cocaine see *Drug Habits*.

COLD HANDS AND FEET.—See *Circulation, Defective*.

COLDS (*Coryza*).—The so-called “common cold” is an acute inflammation of the mucous membranes of the upper air-passages, in some cases extending to the eyes and the throat, associated with general symptoms. The term “cold” is often applied to any such inflammation of mucous membrane in any part of the body, also to a congestion with a pain and stiffness which follows exposure. The real nature of a cold is the same as that of any other acute disease; namely, an eliminative effort. It occurs only when the body is in a toxemic condition and needs this extra elimination.

The chief *causes* are overeating, dietetic errors, including especially excess of starch, sugar or both, combination of acid and starch or sugar, or of sugar and starch; constipation, inadequate water drinking, deficient skin activity; insufficient exercise, fresh air and deep breathing; the wearing of an excess of clothing and being confined too much in dry and super-heated quarters.

Suppression of a cold by internal medicine or by local applications of medicine is very detrimental and is often the cause of chronic diseases. It is even more detrimental than neglect, but there is no excuse for either. A cold is not generally considered a serious matter, and it is not if properly treated; but it should be accepted as an indication that the habits of living need changing. Any abnormality may become serious if the causes are allowed to continue.

Symptoms. This disease

Colds,
Causes



Pressure on the upper lip to relieve the desire to sneeze. Also effective in nasal irritation as a result of colds and other disorders.

**Colds,
Symptoms**

usually begins with a feeling of chilliness, with sneezing, a dry skin, dullness and heaviness in the head, swelling and congestion of the nasal mucous membrane, thus making breathing through the nose difficult or even impossible. These primary symptoms are followed by a set of secondary ones which consist of soreness, inflammation and watery discharge from the nose, this discharge later becoming mucopurulent in character.

The inflammation often spreads to the throat, causing painful swallowing; to the tonsils causing tonsillitis; and to the larynx, causing hoarseness. The ears may also be affected, causing deafness. The conjunctivæ of the eyes and the tear-ducts may also become involved, causing reddened and watery eyes. There usually is a slight elevation of temperature, the appetite is partially lost, as well as the sense of smell and taste. Constipation is usually present. The "spreading" of the cold to additional mucous surfaces is due to the body's urgent need for additional eliminative area. A cough often accompanies a cold. See *Cough*.

**Colds,
Treatment**

Treatment. When a cold is just starting, it often can be aborted by increasing the elimination through the ordinary channels by taking a full hot enema followed by a hot foot-bath or immersion bath to increase perspiration. When the foot-bath is used the body should be wrapped in a blanket and plenty of hot water should be drunk. When the hot immersion bath is used, cool water may be taken, but if one desires one may drink hot water.

An electric-light, steam or vapor or hot dry air cabinet bath will help in the elimination. When conveniences for these baths are lacking one may sit on a chair beneath which is a vessel of boiling water, with a blanket arranged over him tent-fashion so as to reach the floor all around the chair. A cane-bottomed chair is best. Care must be taken to avoid chilling after any sweat-bath. A warm and a cool or cold rinse should follow, then good drying. This treatment should be followed by extra rest and a full night's sleep, being sure that the bedroom has an abundance of fresh air. Some special deep breathing before going to sleep would be valuable.

If the cold is still present the next morning, the diet should be reduced to only lemon or orange juice in water. Six or eight oranges or lemons daily will be enough. Water may be taken hot or cold, or both. This diet should be continued with a cool enema daily until the acute symptoms subside. Special attention should be given to deep breathing of fresh air. Exercise may be confined to walking. If possible to obtain nude air- and sun-baths, these should be of further assistance.

Ultra-violet irradiations will substitute to some extent for the sunlight if the latter cannot be obtained. Three days or less is generally sufficient to eliminate any ordinary cold. Eating may

then be resumed gradually, using mostly raw fruits and vegetables. In very severe cases accompanied by fever, the complete fast may be required, this to be continued until fever is gone, after which one or two days should be devoted to the orange diet, then the milk diet may be taken until weight has been regained. In these cases a cold-sheet pack may be given daily until the fever passes.

A cold is a curative process. Excess of clothing interferes with the activity of the pores, and they are unable to eliminate foreign elements properly. Cold water or air applied to the body has a stimulating effect upon the tissues. Colds, catarrh, pneumonia and sinus troubles can be relieved by arousing the activity of the pores of the body, by the use of light clothing.

It might be dangerous for one who is accustomed to coddling the skin to adopt extreme measures. It might be desirable to inure the skin gradually to exposure before it is capable of normal reaction. Naturally, in air bathing, it is always better to have the advantage of sunlight also. But great benefit can be secured merely by exposing the skin to the air, which should be slightly cooler than necessary for comfort in order to secure the stimulation which is essential. Use as little covering at night as is consistent with warmth. If it grows colder toward morning then add more covering.

Dry friction baths and cold-water bathing are especially advised, as included in the vitality-building routines. (See Vol. II, Sec. 6.) Some precaution should be used in taking cold-water baths. If one cannot react from them with a feeling of warmth they can be of no benefit. In such cases water of a more moderate temperature should be used, gradually accustoming one's self to the use of colder water. Following a friction bath the skin is in a condition, however, to recuperate readily. Sun-baths are not used so long as fever exists.

Colds,
Friction
Baths for

COLD-SORE.—See *Fever-blister*.

COLIC.—This term is applied to any severe, spasmodic abdominal pain, especially to that experienced by infants as a result of indigestion. In children the pain also may result from worms or from the swallowing of foreign bodies. In adults the trouble generally is due to indigestion accompanied by the formation of very large quantities of gas. Other possible causes in the case of adults include the presence of a gallstone in the bile-duct or a kidney-stone in the ureter; to lead-poisoning, intestinal obstruction, enteritis and reflex nerve irritation from ovaries, liver or kidneys.

Colic,
Causes

Symptoms. In abdominal colic the pains are very severe and usually are intermittent and spasmodic in character. The surface of the body may become cold and covered with a clammy perspiration. The abdomen may be somewhat retracted during the

Colic,
Symptoms

paroxysm and the muscles tensed. The usual site of abdominal colic is the intestinal tract, though the pains may originate in the bile-duct or the renal passages. In these cases the symptoms take a slightly different character. See under *Gallstones*; also *Renal Colic*, under *Kidneys, Diseases of*.

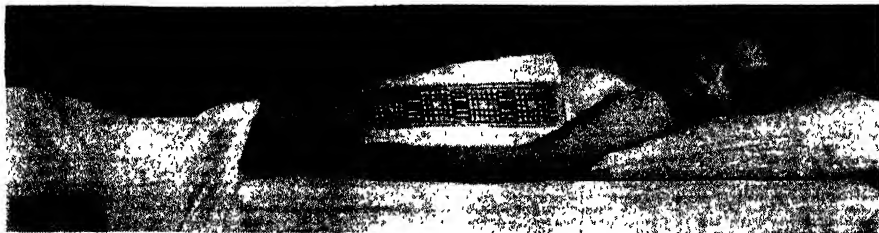
Colic,
Treatment

Treatment. In ordinary intestinal colic the treatment is very simple. All that is necessary is to cleanse the alimentary tract and relieve the gas pressure. If there is any nausea, the first thing is to cleanse the stomach. For quick results a level teaspoonful of salt in a glass of warm water may be given as an emetic; or the throat may be tickled after drinking two or three glasses of plain warm or moderately hot water. After the action so induced there should follow the free drinking of as hot water as can be taken comfortably, both for the relief of pain and for the stomach-cleansing effects.

The next thing is to cleanse the bowels by a full hot enema. If the water causes considerable pain, however, it may be necessary to take several small enemas instead of one large one. If the pain still persists, hot compresses may be applied all around the trunk, maintaining warmth by the use of hot-water bottles. Lying face downward flat upon the hot-water bottle will give further relief because of the combined heat and pressure. Relief of pain by pressure is one of the diagnostic signs of colic.

Heat by any method also usually relieves colic. Hence an electric heating pad or an infra-red generator or an electric-light heat may be used with good results, at the same time maintaining uniform heat and being more convenient than fomentations. In an occasional case an ice-bag will give more prompt and decided relief.

After the pain has disappeared it is well to fast for at least one day and to take fruit a day or two after this before resuming solid food. This gives the alimentary tract a chance to rest and recuperate from the acute disturbance. The enemas should be repeated daily until eating is resumed. Special care must be observed with the diet, especially as regards overeating. A suitable



In colic and other painful abdominal conditions hot compresses, covered with towels to prevent rapid evaporation, may be used.

vitality-building routine also should be used, as it is always important to give attention to general health-building measures.

These same measures will apply also to other forms of colic, though the length of the fast and the subsequent treatment will depend upon the exact cause and nature of the condition. See *Intussusception*; *Enteritis*; *Lead-Poisoning* under *Poisons*; *Gallstones*; and *Urinary or Renal Colic* under *Kidney, Diseases of*.

In gallstone colic and kidney-stone colic relief may be obtained by the use of a hot sitz-bath instead of hot compresses. The water should extend well up to the lower ribs and should be as hot as can be borne. Gentle local massage while in the bath may also be helpful when gallstones are present. The bath should be continued for twenty to forty minutes and followed by the application of a cold abdominal pack, which will quickly become warm. The patient should relax as much as possible, especially while in the sitz-bath. Pain due to the presence of stones can seldom be quickly eliminated; but sufficient relief should be obtained from these measures to avoid the use of opiates.

COLITIS, ACUTE.—An inflammation of the colon or large intestines. See *Enteritis* and *Intestines, Diseases of*.

COLLAPSE.—This is a sudden break-down of all the vital functions due to reflex inhibition of the nervous system. It is a condition of extreme prostration, of extreme vital depletion, affecting all organs and functions of the body. It may come on suddenly when the patient has apparently been in moderately good or fair health, as in the so-called nervous prostration; but as a rule collapse occurs after severe, acute or long-continued chronic diseases when the nervous energy has been greatly exhausted.

Symptoms. The symptoms are somewhat similar to those of shock. There is extreme exhaustion, sometimes coldness of the extremities, weak and rapid pulse, and sometimes temporary retardation of the mental faculties. These symptoms may be only transitory, as in the case of athletes, especially sprinters and middle-distance runners, or they may be more prolonged, as during severe disease or progressive weakness due to continuous overwork.

Collapse,
Symptoms

Treatment. Only a minimum amount of treatment can be used in these cases. The patient is already so exhausted as not to be able to stand much. The important thing is rest. The patient should be placed where he can have complete rest and quiet and should be encouraged to sleep as much as possible. Internal rest is just as important as external. Except in cases due to a deficiency of food, no food should be given, unless there is a keen desire for fruit juice, in which case moderate amounts may be allowed. The patient must be kept warm by any convenient means.

Collapse,
Treatment

Water, of course, may be taken as desired. The more fresh

air provided the better. After there has been some recuperation from the original collapse, a warm enema of moderate size may be given. Several hours later alternate hot and cold spinal compresses may be applied, five minutes for the hot and one-half minute for the cold, making two or more changes. On the second day, mild spinal manipulations may be given, following the compresses.

No food except the fruit juices should be allowed until there is a very definite desire for it. Then, Milk Diet No. 3 or perhaps Milk Diet No. 2 would be indicated. This is the best diet for those cases resulting from a "starvation diet" also, but should follow a day or two of fruit juices. The enemas should be given every other day while fasting or while on fruit juices and daily when on the milk diet until natural movements are obtained. After some strength has been gained Special Exercise Treatments administered by an operator may be applied to the entire body, but no other active exercise except walking should be taken until a definite reserve of energy has been accumulated. This will be indicated by a desire for such exercise—a definite muscle-hunger.

The proper treatment for the acute or chronic disease causing the collapse should be used, of course, as well as the measures here suggested. It is especially important to avoid all energy-wasting habits.

COMA.—This is a condition of profound stupor simulating deep sleep; prolonged unconsciousness. For temporary coma or syncope, which is practically the same thing as fainting, see *Fainting*. Coma sometimes comes on gradually, but as a rule suddenly. It may be complete or incomplete, but the treatment is the same in either case. It may be due to poisoning or to injury or it may come on near the end of a serious disease.

Among the most common causes of coma are overdoses of medicinal agents, alcoholic excess, lead-poisoning, ptomaine poisoning, poisonous gases, concussion of the brain, uremia, diabetes, meningitis, epilepsy, hysteria, apoplexy, brain abscess and brain tumor. It is important to discover the cause as soon as possible in order that appropriate treatment may be adopted.

Symptoms. The symptoms of coma are those of complete unconsciousness. The condition simulates deep sleep. There may be labored or noisy breathing, cyanosis of the face, contracted, dilated or unequal pupils, incontinence of urine and feces. The symptoms differ according to the cause of the coma.

Alcoholic Coma. This form is rarely complete, the patient being able to be aroused but almost immediately relapsing into unconsciousness again. The respiration is deep but not stertorous (snore-like). The pupils are dilated, and the temperature is subnormal. There is an alcoholic odor to the breath.

Coma,
Causes

Coma,
Symptoms

Epileptic. The onset is sudden, the coma is deep, the pupils dilated or unequal. The breathing often is stertorous; the temperature is not elevated, at least in the beginning.

Opium-Poisoning. The onset is gradual, the pupils are contracted to pin-points, the respirations are very slow, the skin is cold and clammy and the face is pale.

Coma,
Types

Narcotic (other than opiates). The onset is gradual and the pupils dilated.

Uremic. The onset is gradual, the pupils are contracted, the respiration is irregular (may be Cheyne-Stokes—step-ladder up, then gradually down, then a momentary pause before repetition); convulsions are common.

Hysterical. Pulse and respiration are normal, there is no blueness of the face, and the patient resists the raising of the eyelids.

Diabetic Coma develops in certain stages of some cases of diabetes. The patient is totally unconscious, breathing is slow, deep and irregular, and there is a sweetish, fruity odor to the breath.

Treatment. Treatment for coma will depend, first of all, on whether it is due to injury, poisoning or disease. If due to injury, the only thing to be done is to make the patient comfortable, loosen his clothing, supply him with plenty of fresh air and call a physician. If the face is congested, keep the head high and apply cold to the head. If it is pale, keep the head low and apply heat locally. Use first aid on any wound or hemorrhage which may be present. If there is reason to believe that the coma is due to poisoning, give an emetic and apply first aid treatment as directed for treatment of *Poisoning* under *First Aid in Accidents and Disease* (Sec. 5).

Coma,
Treatment

If the coma is due to a known form of disease, the chief treatment should be directed toward this. Coma seldom comes on in these conditions unless the patient is in very serious condition indeed. As a rule not much can be done. It may come on in uremia, however, because of sudden failure of the kidneys, which may be stimulated to increased activity. In such a case prompt eliminative measures, especially the cold wet-sheet packs, usually will bring about quick relief, provided prompt and complete reaction is assured.

Coma,
Symptomatic
Treatment

Coma may occur in diabetes, because of overdoses of insulin or indiscretion in diet. In this case prompt administration of baking soda, one to two teaspoonfuls in water, or some quickly digestible carbohydrate such as corn-starch, to overcome the acidosis will soon restore the patient to consciousness. Often two or more teaspoonfuls of soda are added to an enema for greater effectiveness.

If the exact cause of the coma cannot be discovered, treatment must be entirely symptomatic. Fresh air is a primary necessity and rest and quiet should be observed. If the extremities are cold, heat should be applied to them. Hot compresses over the head often act as stimulants. Hot spinal compresses also are of value. Cold applications should be made to the head if there is congestion, or hot ones if there is an anemic condition.

A hot enema will cleanse the intestines and also will act as a stimulant to the nervous system. Over-treatment should be carefully avoided. In most cases the enema and one form of hot or cold application will be sufficient for immediate treatment. By the time recuperation from these treatments is obtained the cause should have been discovered. Then further treatment will depend upon this, as home treatment often will need to be supplemented by scientific medical studies as to the cause of the coma.

COMMUNICABLE DISEASES.—This term is applied to those diseases supposed to be spread by contact with a person having the disease or with something with which such a sufferer has been in contact—diseases formerly called “acute contagious” and “infectious diseases” or fevers. These diseases are assumed to be associated with the presence of a particular germ, though in many cases the specific germ has not yet been discovered. The diseases considered contagious include cerebrospinal meningitis, chicken-pox, diphtheria, erysipelas, German measles, infantile paralysis, influenza, measles, mumps, scarlet fever, smallpox, typhoid and typhus fevers, whooping-cough, and cholera.

While it is true that these diseases often affect other members of a family and frequently occur in epidemics, it is also true that everyone does not get them. The contagiousness of the disease, therefore, depends not merely upon contact with a patient or with contaminated objects, but upon the susceptibility of the individual who experiences the contact. This susceptibility is determined by the degree of the toxemia, by the condition of nutrition, by weather conditions and by the mental attitude.

Very few people are really healthy. Most of them are toxemic to a certain extent and hence need regular periods of extra elimination. They are also brought up to believe that they will get a contagious disease if they come in contact with a person who has it. This causes them to fear such contact. This fear, together with the original toxemia, further poisons the body and thus furnishes a fertile field for the development of the particular disease in question.

No one need fear having a contagious disease if the blood and the body-cells are kept clean and the vitality high through the regular practice of right habits of living. However, this is

no excuse for neglecting sanitation or for unnecessarily associating with persons who have such diseases. There is always the possibility that one has not been as careful as he thinks with his habits of living; consequently his resistance may not be as high as he thinks.

The *treatment* for the various communicable diseases will be found under their respective headings. After the subsidence of such a disease it is customary in many towns and cities to insist upon *fumigation* of the room occupied by the patient, although this practice is passing. (See *Nursing and Care of the Sick*, Vol. VII, Sec. 3.)

The question of *quarantine* also comes up in connection with communicable diseases. Quarantine rarely is perfect. It often works unnecessary hardships upon those of the quarantined household. Nevertheless, a reasonable enforcement of rules for the isolation of patients having communicable diseases is advisable because most people are in a toxemic condition, are afraid of such diseases and, hence, are susceptible. Some health boards and health officers are inclined to impose quarantine when it is not necessary and to be unnecessarily severe in enforcement. This is not only unjust, but it is an addition to an already exaggerated fear of these diseases. *The need for sanitation and right living should be emphasized more than the need for quarantine.*

Though venereal diseases might be included in the above list of communicable diseases they are omitted because of the usual way in which they are spread. See *Gonorrhea* and *Syphilis*.

COMPLICATIONS.—A complication is usually defined as a new or secondary disease process which occurs while another disease is going on. As a matter of fact, it is merely a new group of symptoms produced by the body in order to obtain extra elimination because the first effort was not sufficient or was suppressed or retarded. Complications do not occur when a case is properly treated. It is only when the original symptoms are neglected or suppressed or when their causes are not removed that complications become necessary.

If a complication occur it is just as necessary for the future health, perhaps even life, of the body as were the original symptoms, often more so. The body does not produce any symptoms unless these are required for its own good. For instance, if one has a cold but does not take the proper treatment for it, the inflammation may extend to the eyes or to the throat or down the bronchi because a larger area of inflammation is being required to obtain the necessary elimination to restore a normal condition; or if a child develops a case of scarlet fever and the fever and other symptoms are suppressed by improper treatment, the patient will often develop a "running ear." The body brings about these

Communi-
cable Dis-
eases, Quar-
antine

Complica-
tions,
Defined

Complica-
tions, Causes

new modes of extra elimination in order to obtain the purification which it failed to get from its first effort.

Boils may occur as a complication of diabetes when the treatment has been entirely a palliative diet wherein starches and sugars have been greatly reduced and an effort made to make up for this reduction by the inclusion of large amounts of fat. If the patient corrects his habits of living and takes eliminative treatment to remove the toxemia originally responsible for the diabetes, no trouble will be experienced with boils. So it is in each case. If the proper treatment is taken complications will not occur.

Complica-
tions, Re-
lapses

The same may be said of *relapses* and *acute exacerbations*. A relapse is a return of a certain group of symptoms which had apparently subsided. Acute exacerbation is the term given to a certain flare-up which occurs during the process of a chronic disease. These often occur, as in cases of arthritis, for illustration. The patient may appear to be getting along fairly well when suddenly, without any apparent cause, one or more joints will swell and become very painful and severe inflammation will develop. These relapses and acute symptoms are generally due to indiscretions. Apparent improvement leads the patient to become careless, so he must pay the price.

It should be noted, however, that acute exacerbations may be produced also by strenuous eliminative treatment; by mental shock; by strong diets and the extensive use of packs and other hydiatic treatment. Such other treatment may be employed sometimes in a chronic disease in order to bring about greater elimination and, consequently, more rapid improvement thereafter.

In most cases the only *treatment* required for complications is more careful attention to the measures that should have been employed for the original condition. Special attention is to be given to removing or attempting to remove all discoverable causes. If the patient is not on a fast at the time it generally would be advisable to stop eating until the new symptoms have subsided. Enemas naturally should accompany the fast. Local treatment in the form of packs or compresses may be used in accordance with the symptoms which occur. All suppressive treatment should be carefully avoided. Usually the new symptoms will take a definite form, to which a name can be ascribed.

Detailed suggestions for treatment can then be found under that heading.

Concussion
of the Brain

CONCUSSION OF THE BRAIN.—Concussion of the brain designates that form of injury following a blow upon the head not causing any organic lesion of the brain. The skull may or may not be fractured. It is associated with a temporary loss of consciousness.

Symptoms. The symptoms of concussion of the brain consist of partial or complete loss of consciousness persisting for a variable length of time, usually with dilated pupils and great prostration, headache and often vomiting. The above are the principal manifestations of cerebral or brain concussion. But if the concussion is followed by inflammation the symptoms of this condition will supervene: Headache, vomiting, vertigo, mental dulness. Sometimes delirium, convulsions or coma may be present. Fever is usual, but sometimes the temperature is subnormal. The pulse is slow. A chill may be the first symptom noticed. Prostration, emaciation and exhaustion develop in many cases, and paralysis may occur. Encephalitis (brain inflammation) usually is fatal.

Treatment. In most cases of concussion of the brain, if the patient is allowed rest and fresh air, recovery takes place spontaneously in a short time. (See *First Aid in Accidents and Disease*, Sec. 5.) If the case is severe and the unconsciousness continues, treatment advised for *Apoplexy* (which see) should be employed. But from the first it is important that most cases be under the care of a physician.

Concussion
of the Brain,
Treatment

CONFINEMENT.—See *Childbirth*, Volume IV.

CONGESTION.—This is an excessive accumulation of blood in any organ or part of the body. There are two forms, passive and active. *Passive congestion* occurs when something interferes with the venous return circulation so the flow of blood away from the part is prevented, either partially or entirely. It may result from the pressure of constricting clothing or from retaining a part of the body in a cramped position for a considerable length of time. In such cases removal of the pressure or contraction will soon bring relief. Such congestion may be due also to pressure from tumors, gas pockets or accumulation of fecal matter in the intestines, etc. In any case if the congestion is allowed to continue an inflammation will develop.

Congestion,
Passive

Active congestion occurs when more blood flows to a part or an organ than can be taken away by the normal veins. It is practically always associated with inflammation and, therefore, is due to an eliminative effort being made by the body to take care of an accumulation of toxins within it.

Congestion,
Active

Symptoms. The symptoms of congestion depend largely upon the location of the part affected, as well as the amount of the congestion and upon whether the congestion is active or passive. Active congestion usually gives more acute symptoms than passive congestion. As congestion usually is found in connection with inflammatory conditions, the symptoms are more or less associated with those of inflammation. Congestion often precedes acute inflammation of a part. In congested superficial parts of the

Congestion,
Symptoms

body there often will be, in the active stage, some swelling, pain, tenderness and redness. In passive congestion there is swelling, sometimes quite an extensive pain. There may be edema and often coldness of the part, which usually has a livid or bluish discoloration.

Congestion,
Treatment

Treatment. The treatment depends practically upon the cause of the congestion. If there is any external pressure this should be removed. Internal pressure from gas or fecal matter can be relieved by the use of an enema. When the congestion is associated with a definite disease, the chief treatment should be directed toward this. However, measures for accelerating the circulation may be used for immediate relief in all cases.

Water treatment has the widest application, especially alternate hot and cold compresses. These are generally applied for three to five minutes for the hot and one for the cold, making three to five changes. If the congestion is active and very severe, especially if it is located in the head, it would be better to apply cold compresses in order to check the flow of blood to the part. At the same time hot applications may be made to another part of the body remote from the point of congestion, as this helps to draw the blood away from the latter part. The hot foot-bath, for example, is an excellent procedure for cerebral congestion.

In milder cases where there is but little inflammation, massage and Back and Shoulder Movements Nos. 1 to 11 may be employed to advantage. In cases of internal congestion, such as in the lungs, kidney, liver, etc., it is helpful to apply cold packs, as these draw the blood to the surface and hold it there through the continued dilation of the surface capillaries. A careful reading of the section on *Water and Health* (Vol. VI, Sec. 2) will enable anyone to determine the proper form of application in any case. One should not depend upon local treatment alone, however, but should aim to remove causes and correct the habits of living. (See also treatment of *Inflammation*.)

CONJUNCTIVITIS.—An inflammation of the conjunctiva or mucous membrane covering the eyelids and the eyeballs. (See *Eye, Diseases of*.)

Constipation

CONSTIPATION (*Costiveness, Intestinal Stasis*).—Although the term constipation is applied to that condition in which the person affected has infrequent, irregular movements of the bowels, yet both the cause and the degree of the complaint differ to such an extent in various cases that it is necessary to note other signs connected with the trouble.

Constipation,
Acute

Acute Constipation. Constipation may be a temporary condition coexistent with, and due to, some acute abnormal condition of the body, in which case there is a sudden stoppage or a great

reduction in the frequency of the normal bowel passages. Most cases of constipation are chronic, coming on gradually and lasting for a considerable time; but it is also possible for constipation to come on suddenly, then usually to subside quickly if properly treated.

Most cases of acute constipation are associated with other acute diseases, especially those accompanied by fever. It may be due, however, to intestinal obstruction (as by abdominal or pelvic tumor), intussusception (a telescoping of one part of the intestines into another part), to the use of drugs, especially opium and its derivatives, which inhibit the intestinal secretions, to the use of large quantities of constipating foods, or to the sudden stopping of exercise, as when taking a long journey on a train, if one has become accustomed to exercise.

Treatment. Treatment will depend upon the cause. If any particular disease is present, this should be treated according to its nature. Treatment for intussusception will be found under that heading. The use of all drugs, including laxatives, should be discontinued. The diet should be corrected to suit the main disturbance. Exercise should be resumed, if it is no more than alternate contraction and relaxation of the abdominal muscles, together with deep breathing. This can be done anywhere, whether reclining, sitting, or standing.

Constipation, Acute, Treatment

For immediate relief the enema must be depended upon. This should be warm unless there is considerable fever, in which case it may be cool. The quantity should be as much as can be taken with comfort. If only a small quantity can be tolerated a number of small enemas may be preferable to a large one. The use of the enema should be continued daily until normal actions are obtained, though if these do not occur as the causes are removed it would be well to reduce gradually both the temperature and the quantity of the water used for the enema, and perhaps to dispense with the enema on alternate days. In simple cases due to improper diet and lack of exercise it is well to fast or to go on a fruit diet for a day or two. Other cases may require a longer period of abstinence from solid food.

Chronic Constipation. Some of the more important causes of chronic constipation are a sedentary life, various physical conditions which debilitate, such as neurasthenia, anemia, fevers, neglect of nature's calls, drug habits, senility, poor teeth, excessive eating, deficiency of food or foods containing too little cellulose or "roughage," wrong combinations of food, improper chewing, mechanical obstructions, etc.

Constipation, Chronic, Causes

Abnormal conditions of the lower spine may cause constipation, by lowering the tone of the bowels, by affecting the liver, or by

causing an abnormally tight condition of the rectal sphincters. In some cases a retro-displaced (backward) uterus, prolapse of the bowels or floor of the pelvis, or an enlarged prostate gland causes the trouble.

Deficient mastication, in a great many cases, is unquestionably one of the most important causes of constipation. The digestive process cannot be carried on properly when the stomach and the small intestines are called upon to do the triturating and macerating work which ordinarily are done in the mouth.

Constipation,
Chronic,
Symptoms

Symptoms. The symptoms of constipation are either irregular, infrequent movement of the bowels, or no passages at all without the assistance of a laxative or an enema. When an evacuation takes place the material passed is either dark colored and hard and dry (in a mass or in pieces) or it is putty-like, light and clay-colored. Sometimes after passage of hard, stony feces the sufferer has several profuse diarrheal movements. At times the colon or the rectum may become clogged along the walls so that this diarrhea takes place through a tunnel in the center of the obstructing mass.

Coexistent with these symptoms the skin is sallow and pasty, frequently blotchy and pimply and dark rings often appear under the eyes. The tongue is coated and the breath becomes foul. The urine generally is dark colored and strong smelling. Headache is another frequent symptom, usually but not always at the back of the head. The appetite may be fair, even good; but immediately after a meal there may be a sense of pressure and distention in the abdomen.

Gas often is expelled from both the mouth and the anus. The distention with gas causes pressure upon the diaphragm and may oppress the heart, causing shortness of breath, pain, or even a hysterical condition, and fear of heart disease or heart-failure. There usually are lassitude, loss of ambition, drowsiness or sleeplessness, vertigo and often mental depression. The origin of many nervous maladies lies in a more or less chronic constipation, though often the sufferer may be unconscious of the fact.

When one is suffering from constipation there nearly always is a subnormal functioning of the stomach and many parts of the alimentary canal. The muscular tissues of the bowels have lost tone, they have lost strength, lost their power to resist the influence of the overwork continually forced upon them. Therefore, with long-continued constipation there often is dilation, or an enlargement, or ptosis (a sagging down) of some or all the organs that make up the alimentary tract.

Constipation,
Chronic,
Treatment

Treatment. Cathartics of all kinds, especially mineral cathartics, should be avoided; they lessen one's vital efficiency, they dry up the glands that furnish the digestive juices, and in many ways

they interfere with the activities of the physical organism. It is unwise to take drugs to cure a complaint of this nature when there are various other methods of relief far more pleasing and far more satisfactory, especially more permanent in their results.

For instance, there is what is termed the internal bath, the cleansing of the colon with a considerable quantity of water. As a means of temporarily remedying constipation, this particular method cannot be improved upon. It can be highly recommended where one is suffering from a sudden attack of acute disease. (See *Enema*, Vol. VI, Sec. 2.) Colonic irrigation given by a skilled operator is of great value in cleansing the large intestine.

The lower bowel being the principal sewer of the body, many poisons are eliminated from the body through it. Frequently, attacks of acute illness can be almost immediately relieved by this one measure. It is claimed that the continued use of enemas entirely destroys the natural functions of the bowels. Where they are used too frequently and continued for a considerable period of time, this is true, especially when immoderate quantities of water or when hot water are used. However, there is no necessity for cleansing the bowels in this manner except when one actually has need for the relief. Often the injection of a pint to a quart of water will be sufficient to bring about a satisfactory evacuation. But where an acute disease is being treated and there are symptoms at all serious in nature, it is well to use all the water the patient can retain for a few minutes; for under such circumstances the bowels are more thoroughly cleansed and the process of eliminating poisons is continued much more actively.

Constipation,
Enemas in

One should not depend altogether upon this means of internally cleansing the body, but should so adapt his diet and exercises that the alimentary canal will perform its duties without artificial assistance. The sufferer should avoid concentrated foods. Highly seasoned dishes that require complicated preparation also had better be shunned entirely.

When beginning a dietetic routine for the purpose of increasing bowel activity it is well to remember that there is the probability that one has been eating too heartily. Under such circumstances, of course, it is exceedingly valuable to precede the treatment with a fast of at least one meal or, better still, from one to five days. A process of this kind will help to restore the bowels to normal muscular tone. They will be able to perform their functions more ably as a result of this brief rest. But whether or not digestive rest be taken, it will be necessary to add to the diet various foods that will bring about the desired object.

Constipation,
Diet in

Use whole-wheat bread—not the brownish bread often sold for whole-wheat, but bread made from the whole grain, bran and

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all. Also use plain bran, or, if desired occasionally, bran muffins.

Constipation, Fruits in

Various fruits are used in the treatment of this trouble. Grapes, for instance, can be recommended, the entire grape to be eaten. Grape-juice likewise often is effective. This is especially so if it is taken in the form of what some call grape-coffee. This is made by filling a cup one-third full of grape-juice, sweetening it with a teaspoonful of honey, and filling the remainder of the cup with boiling water. If one or two cupfuls of this are taken immediately after a meal it often will bring good results.

Some find that apples act very beneficially. Where there is a desire for fruit of this nature, they may sometimes be eaten between meals with benefit. Fresh apple cider is particularly beneficial in this regard. Prunes and figs are the most laxative of ordinary fruits. They may be taken uncooked or stewed. To many people oranges, pears, peaches, or certain other fruit will be laxative and to most people blueberries, huckleberries and blackberries have decidedly laxative qualities. The bulky green vegetables, particularly in salad form, but also cooked, are even better than fruits in most cases.

Constipation, Water Drinking in

Many people suffer from constipation because they do not drink sufficient water. This does not mean, however, that one should force himself to drink large quantities of water; but one should acquire the habit of drinking at least a glass of water for every two hours during waking hours. It is not necessary to drink every two hours, but the entire amount of water that one takes during the twenty-four hours should average at least this amount. It is stated that some Japanese make a habit of drinking at least a gallon of water a day, but this is more than is required.

In addition, the *whole* grain of wheat, barley, oats and rye can be recommended for troubles of this nature. The ordinary rolled oats which may be purchased in grocery stores will be found a fairly good article of diet. The whole barley, prepared as a whole grain, is valuable. Olive oil can be palatably used on various foods, or if one or two tablespoonfuls are taken at night on retiring good results can be secured. Mineral oil has a better effect in most cases; but it must be used regularly for some time. It is a lubricant, not a laxative. It should be taken with meals and thoroughly incorporated with the food. If desired, it may be taken with bran, at one or more daily meals, as required.

Constipation, Uncooked Foods in

In many cases better results are secured by the use of uncooked foods. If there is an antipathy to eating certain beneficial foods in this manner one might first try flaked grains, prepared by placing about a teacupful of flaked or rolled wheat, oats, rye or barley on the stove, with a similar quantity of water. As soon as the water begins to boil the food is ready to serve and may be

eaten with dates, raisins, or any other sweet fruit that one might desire, with the addition of cream or milk if this is necessary to make it more appetizing.

The whole grains (kernels) of wheat, rice, barley, and rye, also may be so prepared as to make a very tasty and excellent food. Soak the grains overnight in a small quantity of cold water. Put them on the stove the next day and simmer for several hours or until they are somewhat softened. Be careful not to add so much water that a part of it must be poured off the grain. Fifteen minutes or half an hour before you take the grain from the stove add dates, raisins, or other sweet fruit.

The above dietetic suggestions will answer perfectly in nearly all instances; but in serious and acute cases it sometimes is advisable to adopt a still more radical plan.

In order to accomplish quick results in severe cases of constipation the first suggestion of all is a fast. This fast should begin with Complete Fast No. 3 for two days, followed by Complete Fast No. 2 for three or four days, depending altogether upon the vitality and general vigor of the patient. The longer the fast is continued, within reason, of course, the greater the advantage, unless the patient shows distinct signs of emaciation or low vitality before beginning the fast. Under such circumstances two or three days, or five days at the outside, should be the limit of the fasting period.

Constipation, Fasting in

Each day while following the fast for the treatment of constipation it would be advisable to take a full enema, thoroughly cleansing the colon. The fast-breaking routine suited to the length of the fast should be used; and it is advisable in practically every instance to follow with Milk Diet No. 1 (or sometimes with Milk Diet No. 10), unless one already is much overweight. After breaking the fast, Cereal Diet No. 1 or 3 may be followed if it is impossible to follow the milk diet. Or Milk and Fruit Diet No. 3 may be taken with very agreeable results.

One must remember, however, that the tendency of the sweet milk diet, in nearly every case, is to aggravate symptoms of constipation when one first begins it; hence before attempting this diet one should read carefully the full instructions for taking the milk diet, given in this volume. In some cases it will seem to aggravate the symptoms of constipation so greatly that it will be difficult to take. This occurs, however, only in rare instances, and the difficulty nearly always will disappear as soon as a sufficient quantity of milk is used. By constantly increasing the quantity of milk one usually can depend upon being relieved of constipation. Owing to the influence of the milk in toning the muscles, circulation, nerves and glands of the intestines, it is an especially valuable diet in remedying this disorder.

A cold abdominal pack put on before going to bed and allowed to remain all night, or until dry, frequently will be of value in the treatment of this disorder. It will improve the circulation and add to the general vigor of the internal organs. Likewise, daily cold sitz-baths often are of great benefit because of their invigorating influence. General or local abdominal cold baths are valuable in most cases.

The mixture of one quart of hot water, the juice of one lemon and half a level teaspoonful of salt is excellent in cases of constipation. The water is to be just hot enough to allow fairly rapid drinking and the entire quart should be taken within ten to fifteen minutes if possible. This may be taken twice a day, but if taken shortly after arising, with no other breakfast, it probably should not need repetition during the day.

Constipation, Foodless Foods in

This is one condition in which the "foodless foods" may be used with some benefit. These "foods" may be agar-agar, or cellulose flour made from cotton or wood. Ordinarily the same good usually can be secured by those bulky foods that have also some indigestible elements. However, these "foodless" substances are used chiefly to provide bulk to aid peristalsis and to assist in cleansing the intestinal walls. They require no digestive effort, since they are non-digestible. Mineral oils simply lubricate the foods and intestines. They are not absorbed by the system, but become mixed with the feces and pass out of the body practically unchanged.

It is wise to adopt such a dietetic routine, as well as other health factors, so as to normalize the musculature, circulation and nerves of the digestive canal and follow it or some other method to perpetuate the relief secured.

If one is suffering from constipation, no matter what method may be adopted to effect a cure, one should not forget the necessity for walking at least once each day until there is a slight feeling of fatigue. The distance covered, of course, will depend altogether on one's strength. Some people can walk for many miles without fatigue, while others will tire after walking a very short distance; but if the suggestion to continue to walk merely until there is a slight feeling of fatigue is followed, there will be no danger of overexertion.

Constipation, Exercise in

It may be added that it is exceedingly difficult to walk too much. Of course, if one were to use his will to force himself he might walk beyond his strength. However, many persons have been known to continue to walk until they felt they were hardly able to stand, but after a few hours' rest they felt as fresh and strong as ever. This indicates that the fatigue that comes from walking very quickly disappears because of the tonic effect of

this particular exercise on all the various blood-making and vitality-building organs (see Volume III).

Another especially valuable exercise is that of jumping slightly, just as one jumps a rope. The slight jar of this particular exercise accelerates the activity of the intestinal tract and will be found very useful in the treatment of constipation.

As a rule it is a good plan to take this exercise upon rising, and it will be found more effective if one will drink one or two glasses of water before beginning the exercise. The exercise should be continued on each occasion until a slight feeling of fatigue is noted. At first, unless one is fairly strong, he may find it difficult to jump more than one hundred to three hundred times without feeling fatigue, though for best results the exercise should be continued for two hundred to even five hundred times, resting whenever one feels especially tired. Of course, it is understood that this exercise is to be indulged in only if there is no organic contra-indication, especially heart, lung and kidney disease or prolapsed organs.

Constipation,
Jumping
for

The exercise of leaning forward while sitting in a chair, pressing the abdomen strongly against the right leg, then returning to a sitting position, and repeating the exercise pressing the abdomen against the left leg, also will be found valuable in this trouble. This exercise should be continued until there is a feeling of fatigue. When leaning forward to press the body against the right leg the body should be swayed well to the right, and then well to the left when pressing the body against the leg. This exercise gives the colon a kneading treatment equivalent to an abdominal massage.

Massage of the abdominal region with the fists also can be recommended in some instances. If one will tightly close the right hand and then press inward, using the other hand to add to the pressure, encircling the abdomen in the direction of the movement of the hands of a clock, one nearly always will secure favorable results. This is especially so if one persists in this movement regularly and for a sufficient length of time. A croquet ball or a metal ball of similar size may be used to roll over the abdomen in the direction mentioned. Manual or mechanical vibratory massage has a toning, stimulating effect in any case.

Constipation,
Abdominal
Massage in

The exercise of rising to a sitting from a reclining position brings the abdominal muscles into active play. The exercise of raising both legs to a vertical position while reclining on the back also has this effect, as do the exercises of starting with the legs vertical and then performing various movements. When one strengthens the walls of the abdomen, to a certain extent the internal organs seem to acquire additional vigor. Percussion

given by the hands of an attendant or by a mechanical vibrator, or self-applied by the hand, also is beneficial, but the abdominal wall should be lightly tensed. See exercises illustrated in Volume III.

Perhaps no exercises are more valuable than abdominal breathing movements. For instance, when drawing in a breath and slightly expanding the abdominal region, all the organs in the abdomen receive the stimulation of the slight movement which comes with this combined with exhaling and abdominal retraction.

In short, a general vitality-building routine should be adopted for increasing the strength and vigor of all parts of the body. It is important to select a routine adapted to one's strength and to follow the general instructions given therein persistently.

In stubborn cases, it will help greatly to give Special Manual Treatments 11 to 16 or for the patient himself to take Self-Applied Exercise Movements 1 to 6, thus stimulating the nervous system. These treatments affect the lumbar and dorsal regions of the spine, thus influencing directly the spinal nerves which control activities of the bowels. In some cases this feature of the treatment will be found the most important of all.

Regularity of habit in defecation is a good thing to cultivate, especially if one practices regularity in regard to meals. However, one never should resist the slightest inclination to defecate, no matter at what time of day. Disregarding the calls of Nature is responsible for a great deal of constipation and of trouble due to this condition.

Constipation sometimes is induced mechanically by the presence of tumors or by displacements of the uterus. In such cases appropriate treatment for these disorders will be necessary. Gravity exercises are of excellent value, indirectly, for constipation resulting from displacement of the uterus or the bowel; and for the latter the sinusoidal electrical modality to the abdomen has a remarkably direct effect, as it also does in case of simple loss of tone of the colon. Rectal dilation by means of solid dilators is excellent for constipation due to a tight sphincter; spinal manipulations and concussion of the second and the fourth lumbar vertebræ also are of much benefit. Sunlight, ultra-violet or infra-red treatment are of excellent, though indirect, value.

CONSUMPTION.—See *Tuberculosis of the Lungs*.

CONTAGIOUS DISEASES.—See *Communicable Diseases*.

CONTUSIONS.—See *First Aid in Accidents and Disease* (Sec. 5).

CONVULSIONS.—A convulsion is a generalized, spasmodic, involuntary contraction of the body, having an abrupt beginning and lasting generally for only a short time. It may or may not be associated with loss of consciousness. In the case of an adult,

if consciousness is lost, the convulsions generally are a result of epilepsy, uremia or apoplexy. If consciousness is retained, the cause generally is hysteria, tetanus, hydrophobia or strychnine-poisoning. For convulsions in children, see below, *Convulsions, Infantile*.

Convulsions,
Symptoms

Symptoms. These vary according as the convulsions are partial or general. In localized convulsions (not common) a small part of the body may be involved, such as the face or an extremity or part of an extremity. In general convulsions the entire body is affected. At the onset the body becomes tense and rigid for a few moments. This is the stage of *tonic spasm*. The skin becomes wet with a cold perspiration, the pulse is weak and rapid and the eyes are turned forcibly upward and are staring. There is complete unconsciousness. After a few moments of this stage the second stage, that of *clonic spasms*, begins. In this stage convulsive movements of the body occur, the arms and legs jerk, the fists are clenched, the thumbs are turned inward, the face twitches and there is involuntary passage of urine. After a longer or shorter interval the spasms subside and there supervenes a semi-stupor which gradually passes into normal, natural sleep. The whole sequence, however, is likely to recur from once to many times. After the spasms have ceased the patient usually is left extremely prostrated. Sometimes the tongue is bitten during the convulsion, although this is more likely to be the case in epileptic seizures.

Convulsions,
Treatment

Treatment. Since the convulsion is only a symptom, treatment will depend upon the disease which is causing it. The proper measures for the diseases mentioned will be found under their respective headings in this volume and Volume VIII. For immediate treatment, the patient should be placed in a comfortable position, his clothing loosened and plenty of fresh air supplied. Usually a physician should be called at once.

The convulsive movements should not be unduly restrained, though the patient should be prevented from injuring himself, especially from biting his tongue. The insertion of a handkerchief between the teeth is valuable for this purpose. In prying the mouth open to insert the handkerchief the thumbs (which are the only digits likely to enter the mouth) should be well padded with handkerchiefs.

If at all possible to do so, an enema should be given to cleanse the bowels. If the convulsions are severe and are due to uremia, hysteria, tetanus or hydrophobia, a hot immersion bath will prove very helpful. Usually a cold head compress should be applied at the same time. Further treatment will depend upon the exact nature of each case.

Convulsions,
Infantile,
Causes

CONVULSIONS, INFANTILE.—A nervous disease to which children are liable, characterized by involuntary spasmodic contractions. There are few diseases of children that present such startling and alarming symptoms as those in which convulsions appear. They often frighten the parent to such an extent that intelligent consideration of a remedy is almost impossible. In its milder form convulsions usually are seen in infants who sleep with the eyelids open, showing the eyeball turned upward. The face twitches and the hands are clenched. The breathing is irregular.

The severe form resembles an epileptic seizure. The child becomes unconscious, gnashes its teeth, squints, cries aloud, tosses its head, and may throw itself backward. Occasionally the seizure ends in death unless correct remedial measures are adopted at once; but the large majority of cases do not end fatally.

Some of the *causes* of infantile convulsions are stomach and intestinal disturbances, ear troubles, wrong feeding, nasal obstruction, phimosis (long foreskin in male infants), intestinal worms, or severe injury. Other possible causes are rickets, meningitis, infectious fevers or any disease associated with high temperature. They frequently occur also in certain diseases of the brain and the spinal cord and at the beginning of many infectious diseases.

Convulsions,
Infantile,
Symptoms

Symptoms. What really makes convulsions more fear-inspiring is the fact that they often appear without previous warning. The younger the patient the more liable he is to an attack of this sudden character. In many instances, however, various signs indicate the possibility of an attack of this complaint. The child, for instance, often will half open his eyes when asleep, and there may be slight twitches of the facial muscles. These latter movements are especially noticeable about the mouth. If there is real danger of an approaching attack the child will often have labored respiration. It often will moan gently while asleep. Frequently these symptoms will pass away without convulsions appearing.

One authority states there is more cause for fear when the thumbs are drawn into the palms, either habitually or during sleep; when the eyes are never more than half closed during sleep; when the twitching of the muscles is no longer confined to the mouth, but affects the face and extremities; when the child awakens with a sudden start, a much-colored face, accelerated pulse, and the expression of the face showing alarm or anxiety; or when the child cries aloud in fear without apparent cause.

During an attack twitching of the muscles of the face usually is observed, then the body quickly becomes rigid; in a few moments thereafter twitching motions of the body begin; the head and the neck are drawn backward, and the limbs violently stretch and bend. In some few cases the movements are confined to

certain parts of the body. Usually the eyes are rolled upward and have a staring, fixed expression, though they cannot see, as anything passed before them will not induce winking. The pupils sometimes are greatly contracted or dilated. The hearing also is affected, as even loud sounds seemingly cannot be heard. The pulse frequently is fast and weak. Breathing is greatly accelerated in frequency, but is feeble, and the surface of the body is moist with perspiration.

These convulsions may last for a minute, though sometimes they will continue for half an hour or more. Following them the child usually sinks into a stupor or becomes bewildered. Sometimes it will start to cry violently and will return to its senses.

Convulsions may appear once only, or they may continue at intervals, depending, of course, upon the constitutional nature of the child, the underlying cause and the treatment used.

Continuous disturbance of the circulation resulting from their frequency may cause an undue pressure on the brain, or the blood may stagnate therein; spasms also may affect the muscles that open and close the entrance to the windpipe and the child may die as a result. The very strenuous muscular movements also may exhaust the patient. Infantile convulsions, however, usually cease as soon as the cause is removed; but if constantly recurring, a condition of true epilepsy may result.

Treatment. The severe form of this disease may be treated in a manner very similar to ordinary convulsions. When the attack first appears, be sure first of all that the child is supplied with plenty of fresh air. Loosen all clothing that might interfere with breathing. It also is well to place a knotted handkerchief, a pencil or other convenient object between the teeth to prevent biting the tongue. If the tongue is so far back in the mouth that it interferes with breathing it should be pulled forward, by the aid of a handkerchief, the jaws being held open by a well-wrapped thumb.

Convulsions,
Infantile,
Treatment

A dash of cold water on face and head sometimes will be of value, though a very hot abdominal or spinal pack should be given immediately thereafter if the convulsive symptoms do not quickly disappear. In a violent seizure, what is even more effective is complete immersion of the child, except the head, in a hot mustard bath for five to twenty minutes, according to need. A heaping teaspoonful of mustard in a quart of water steeped ten minutes and added to a small child's bath at 105 to 108 degrees is about right. Cold water may be applied to the head meanwhile. A hot spinal pack may be given afterward, or used instead of the bath. A hot-blanket pack will do about as well, if the hot bath is not convenient. If the convulsions still continue after a half hour, a full hot enema will be of advantage, to supplement the above.

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A valuable remedy in this complaint is to insert the finger into the throat of the child and induce vomiting. This, in itself, often will bring immediate relief. The process should be continued until the stomach entirely empties itself.

Convulsions,
Infantile,
Diet in

The treatment up to this point is intended to relieve the convulsions. In the milder form of the disease or following an attack of convulsions Complete Fast No. 3 (modifying the quantity of water according to the age of the child) should be continued as long as there is any indication of the disease, or unless it is apparent that the patient craves nourishment in the form of acid fruits. Then fruit juices and their pulp may be given in moderate quantities, as in Partial Fasting Routine No. 1 or No. 2—reduced in quantity and diluted according to the child's age and general condition.

A wet-sheet pack may be given daily as a part of the treatment, though when the patient is especially weak a hot spinal pack in the morning and a hot abdominal pack in the afternoon would be safer and preferable. In the use of the abdominal pack and the wet-sheet pack one should remember that whenever there is fever these should be given cold. When the body is at normal temperature or there seems to be a lack of bodily warmth, these packs should be hot. The spinal pack should be hot always.

Convulsions,
Infantile,
Baths in

In some forms of this disease a neutral bath, 96 to 98 degrees, is recommended, though this bath should not be used when other hydropathic treatment is given, with the exception of the hot spinal pack. It may be given in connection with the latter; that is to say, the hot spinal pack in the morning, the neutral bath in the afternoon. The neutral bath has a soothing and restful effect upon the nervous system.

If the patient does not like the taste of water it would be to advantage in most cases to flavor it with lemon juice, a little salt, or a small quantity of honey, as a means of encouraging its free drinking. The water may be used hot or cold, as desired.

Spinal manipulation usually will be of much value in the treatment, either in the severe or the milder form of this disease, inasmuch as it directly affects the nervous system, and this disorder is largely a form of nervous derangement. Special Manual Treatments 1 to 10 may be used once daily at a time when the patient will be sure to react from the stimulation. In fact, this treatment may be used instead of the hot spinal pack which is recommended for most cases. For stronger patients, some or all of the back and shoulder movements described under Special Exercise Treatments in Volume VI may be used. Foreign bodies in nose or ear (which sometimes cause convulsions) must be removed, of course.

CONVULSIONS, PUERPERAL.—Convulsions occurring during the

period of pregnancy, childbirth or shortly thereafter, are due to failure of the kidneys properly to perform their work of elimination. This in turn is due, of course, to wrong habits of living. For treatment, see under *Uremia*.

Convulsions,
Puerperal

CORNS (*Clavus*) AND BUNIONS.—Corns are excrescences or callosities which generally appear upon the extremities of the feet, usually upon the smaller toes. These have a cone-shaped core which presses into the skin with the apex of the cone downwards. They are painful, not only from the irritation and inflammation but because the core usually presses upon sensitive nerves.

Corns,
Causes

When the bursa over the large joint of the big toe thickens, this leads to an enlargement of an inflammatory nature, termed a *bunion*. If neglected an abscess may form.

Though the usual cause of all such excrescences is the chafing or restriction imposed by the wearing of tight or poorly fitting shoes, yet when corns, bunions, or any other callosity becomes markedly painful the condition often is due as much to constitutional as to local causes.

Treatment. These unpleasant growths can be remedied in nearly every instance by simply removing the local cause, that is, by avoiding the wearing of any shoe or footwear that in any way irritates the corn or bunion or causes friction to or cramping of the toes. No one's occupation is such that he cannot change poorly fitting footwear for comfortable footwear, though for a time one may need to adopt some means of protecting the affected parts from the shoe.

Corns,
Treatment

Several kinds of corn protectors may be bought in drug stores. These, if applied to the skin around the part, will afford excellent protection and in many cases materially assist in the cure. Often a good one can be made at home by cutting in a piece of thick felt a hole the size of the corn, so the corn may be completely relieved from all pressure. This will be not unlike an ordinary "washer." It may be kept in place by adhesive plaster.

At night, when retiring, if a wet cloth is wrapped around the foot and a dry one over it, being careful to see that the wet cloth comes in close contact with the affected part, one often will be rewarded by a marked reduction of the inflammation, which is the most unpleasant part of such growths. A good chiropodist usually can easily remove growths of this kind.

Corns, Local
Treatment

Were it not for the necessity of wearing shoes, however, such growths would never appear; so if one can have the freedom that comes with wearing sandals, or avoiding footwear altogether, they will soon disappear.

Salicylic acid or liquefied sulphur will soften and later dissolve corns, warts, etc. Bathing the feet frequently with a solution of

salt and vinegar, or of cold salt-water, especially before or after a walk, also rubbing them thoroughly, will help to harden and improve the tissues. In addition to suitable footwear as a protection, care must be taken to dry the feet well after bathing, also to avoid hot foot-baths unless followed by cold applications.

CORPULENCE.—See *Obesity*.

CORYZA.—This is the medical term for acute rhinitis, or cold in the head. Since rhinitis, or inflammation of the nasal mucous membrane, is only one of many symptoms usually associated with a cold, the subject of coryza is taken up more completely under the heading *Cold*, which see.

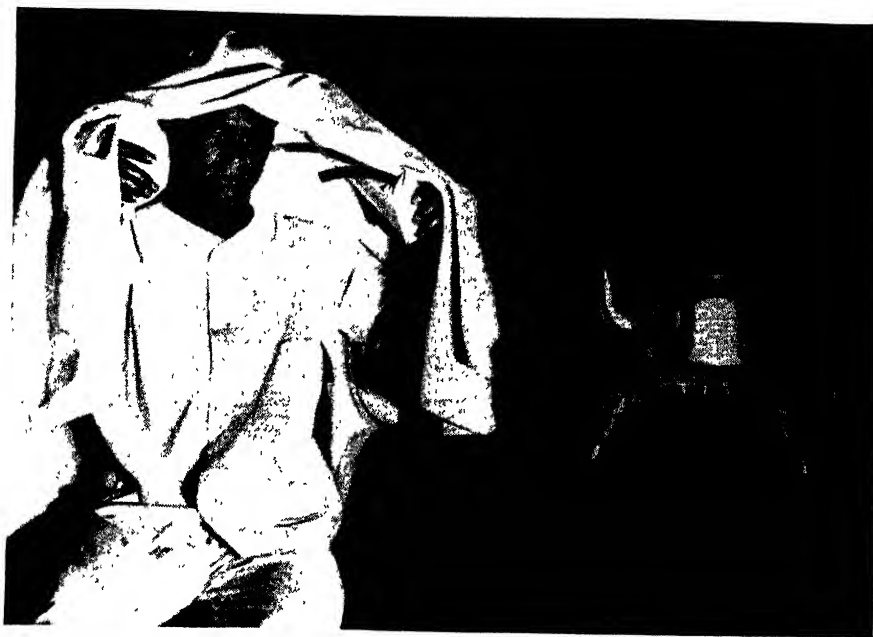
COUGH.—A cough is a sudden explosive forcing of air through the glottis, brought about through spasmodic contraction of the larynx, bronchial tubes and breathing muscles, excited by an effort to expel mucus or other matter from the bronchial tubes or the larynx. However, it sometimes is the result of irritation of certain nerves in the respiratory or digestive tract or elsewhere, the cough being produced reflexly.

A cough may be due to an inflammation anywhere along the respiratory tract, as in colds, pharyngitis, laryngitis, bronchitis, pneumonia, pleurisy, etc., or to nerve irritation, either direct or reflex. Reflex coughs may come from spinal subluxations, stomach disturbances, emotional upsets, such as violent laughing or hysteria, heart or kidney disease and numerous other conditions.

One cause of cough usually completely ignored, in fact usually unthought of, is stricture or other irritation of the urethra, especially the male urethra. The irritation in the throat from such a cause may completely defy will power, occasion extreme coughing attacks, and resist all treatment that does not include means of relieving the irritation in the urethra.

It will thus be seen that a cough is but a symptom of some other disturbance; it is not a disease in itself. It is a danger signal that should be promptly heeded. As to their nature, coughs may be hard and dry, spasmodic, hacking, strident, hoarse, or "loose," with expectoration.

Local treatment alone usually is not sufficient to give complete or permanent relief. The chief attention should be directed toward the causative disease. The diseases mentioned above are fully discussed under their respective headings. (See also *Whooping Cough*.) No attempt should be made to suppress a cough except when it becomes so violent there appears to be danger of injury to the lung tissue or great strain to the larynx or the heart or in case of hardening of the arteries, to the blood-vessels and even then palliative or partially suppressive measures are the utmost that should be used.



For catarrh and colds inhaling hot vapor is often beneficial. This method is used in the treatment of croup, diphtheria and other respiratory disorders. When in use the sheet is drawn down over the head.

When a cough is productive, that is, causes the expectoration of a mucous discharge from the bronchial tubes, lungs, larynx or pharynx, it performs a beneficent purpose and so long as the causes remain the cough will be necessary. Various measures, however, may be used to give relief and some of them also help to some extent to remove causes.

Treatment. If the cough has been determined to be the result of some definite disease, such as tuberculosis, asthma, bronchitis, a heart or a kidney disease, the suggestions given for the responsible disease should be followed. However, no harm and probably considerable good may follow the use of some of the local measures mentioned below.

**Cough,
Treatment**

Sometimes a cough is due to the presence of foreign matter in the throat, in which case gargling with hot or cold salt-water often will remove the offending material. If the cough is due to an excess of mucus the treatment should be constitutional, including the fast or orange diet for a few days, copious water drinking, large enemas daily and an abundance of fresh air. For the first few days, if one is organically sound, fairly long walks may be taken daily, during which deep breathing should be practiced.

If the seat of the inflammation is in the nose or the throat,

cold neck packs will be helpful. These may be applied twice a day for two hours at a time, and also may be applied before retiring and allowed to remain in place all night. Often the best results are obtained by continuing hot applications to the throat until the parts have become thoroughly reddened, then applying cold applications for one to three or four minutes, then repeating the hot and cold applications two or three times. It is not advisable to use the nasal douche or irrigation; but alternate hot and cold face baths may be used with benefit. Small sips at a time of equal parts of honey and lemon juice will prove soothing in case of inflammation or irritation of the pharynx or the larynx.

**Cough, Local
Packs for**

If the trouble is in the bronchial tubes or the lungs, cold chest packs should be of service. These may be given twice during each twenty-four hours. Between these packs the chest may be encased in flannel or cotton wool, though neither will be necessary if the chest is bathed in cold water and thoroughly dried upon removal of the pack. If there is no fever or if the reactive powers are very deficient, hot chest packs may be used instead of cold. In whooping-cough hot compresses applied over the neck and the chest will give relief from a paroxysm. In coughs due to nerve irritation hot compresses applied over the seat of irritation generally will bring about relaxation and relief. If there are actual spinal subluxations, Special Exercise Treatments such as described in Vol. VI will be required, or a drugless physician may be called to give the necessary adjustment or manipulation.

Medicinal cough syrups should be avoided. They contain nothing of benefit to the body and do nothing to remove causes; and besides, they often cause digestive disturbance. Gargling the throat and spraying the nose (and the throat also) with mildly antiseptic alkaline solutions for the purpose of cleansing are permissible, though even these measures should be used only when necessary to give the patient some relief. The respiratory passages are designed to be self-cleansing, so they should be given every opportunity to do their duty. Too much local treatment interferes with the elimination of the toxins which are the fundamental cause of most coughs. Of course, gargling and spraying will be of no value for coughs of purely nervous origin.

**Cough, Dry,
Causes**

A dry cough, one which is wholly non-productive and which apparently accomplishes no good service, should be overcome as a waste of energy and an irritation to the throat, perhaps to other parts or organs as well. Sometimes such a cough is the result of habit or hysteria. The slightest irritation in the throat is sufficient to start some nervous persons coughing and such irritation may continue and gradually bring about a slight inflammation, so perhaps in time the cough may become chronic. The purely

nervous cough will need will power to correct. Often this is all that is required.

The habit of coughing upon the slightest inclination must be controlled. Often this can be done without a great deal of difficulty. But there are non-productive coughs that are beyond the simple remedy of controlling them through exertion of will power. The persistent dry cough that resists all efforts to correct it by simple measures suggested here calls for a thorough physical examination for the purpose of discovering, if possible, the hidden cause.

Diathermia through the throat or the chest; radiant light and heat or infra-red irradiation to the throat, chest and upper dorsal and cervical spinal areas; local irradiation directly to the pharynx and the larynx with the water-cooled mercury-arc lamp with quartz applicator, or by special local applicator attached to a carbon-arc lamp; steam inhalations; percussion or vibration of the spinous processes from the fourth to the seventh cervical vertebrae; spinal manipulations, spinal massage, or spinal fomentations; local sunbaths to the throat externally, to the point of first- or second-degree sunburn; and biting the tongue or pinching the thumb and first two fingers of each hand (or both), or clenching the hands as forcibly as possible, are excellent to check a cough and to improve the local condition giving rise to it.

Cough,
Physio-
therapy in

In irritation of the urethra causing a cough, very hot rectal irrigations, also hot sitz-baths, will be of assistance. Galvanism or diathermia, or both at different times to the urethra may be used. In some cases of extreme nature the passing of urethral sounds to relieve the tension of a urethral stricture, or the injection of some mild antiseptic solution to relieve urethral inflammation, may be necessary before the cough will be controlled.

Cough,
Urethral,
Treatment

In an occasional case, due or not due to urethral irritation or inflammation, the cough is so persistent that local applications of argyrol or of suitable strength of silver nitrate or of zonite to the irritated throat area may be necessary; but any of these should be applied by a physician or a throat specialist. However, this treatment is rarely necessary. Suggestion or autosuggestion may be necessary in some nervous coughs, though in these it is necessary also to build up the nervous energy. (See *Hysteria*, *Neurasthenia*, and *Vital Depletion*.) The final thing to remember is to give the necessary attention to the fundamental rather than the immediately exciting cause of the cough. Chronic constipation often causes reflex cough, hence the importance of thoroughly cleansing the bowels.

CRAMPS.—A cramp is a sudden spasmodic involuntary contraction of a skeletal or involuntary muscle or group of muscles, characterized by continuous tension and rigidity and sharp local

Cramps

**Cramps,
Causes**

pain. The term cramp is also sometimes applied to colic. (See *Colic*.) Muscular cramps are due directly to some interference with the circulation or nerve supply, but there are many sources of such interference. Cramp of a skeletal muscle generally results from overexertion, especially while swimming in cold water, but may be due to holding the body or part of it in a cramped position for a considerable length of time. Such cramps may result, however, from reflex nerve irritation due to disturbances in the digestive tract. These cramps generally come on during the night. The muscles of the calf of the leg are the most commonly affected.

People of nervous tendencies and those who are anemic are especially subject to cramps. Musicians, especially violinists and pianists, sometimes suffer from cramps, owing to the exceptional strain placed upon certain muscles and nerves. Telegraphers, milkers, athletes and others who overuse certain muscles sometimes experience cramps in the muscles used excessively. See also *Occupational Neurosis*.

Cramps of the involuntary muscles are generally limited to those of the digestive tract and the uterus. The former may arise from almost any abnormality of the alimentary tract, but is most commonly found in diarrheas. Uterine cramps occur during the menstrual period and are most frequently a result of malposition or inflammation of the uterus or the ovaries.

**Cramp,
Writer's**

Writer's Cramp is a peculiar difficulty in the use of the muscles of the hand and the arm due to spasmodic contractions, fatigue and weakness, with sometimes a tremulous condition of the member.

**Cramps,
Treatment**

Treatment. The immediate treatment of a cramp in a skeletal muscle includes the application of heat, pressure and massage, for the purpose of securing relaxation and accelerating the circulation. The muscle should be stretched if the anatomy of the part permits and pressure exerted directly upon it. A firm, deep pressure into the contracted muscle or deep stroking or kneading massage to the part usually will prove effective. If relaxation does not occur apply hot compresses for a few minutes, then try again. In most cases prompt relief will be obtained, after which massage of the part will help prevent the soreness which usually follows the cramp because of the extreme contraction. Having obtained relief, seek the underlying causes of the cramp and remove them.

A cramp in the leg when swimming often has caused drowning, but chiefly because of the mental panic into which the swimmer is thrown. Since the disorder is largely of nervous origin, self-possession and calmness are absolutely necessary. One should remember that he can swim a little even if one leg is cramped, or at least he can float. With self-possession, one who knows how to swim can do much with even one free arm. If one will

remain calm under such circumstances it is most likely that the cramp will pass away; but during excitement there is much less chance of relaxation taking place.

Eating before swimming, any digestive disturbance, improper diet, and anemia increase the tendency to cramps while bathing. Swimmers are seldom bothered with cramps if they are careful of their diet and avoid eating for an hour or two before entering the water.

When cramps occur in the involuntary muscles the use of heat is most effective. Since these cramps occur almost exclusively in the abdominal region, the hot sitz-bath is indicated, this to be continued until relief is obtained. If necessary to remain in the water more than five minutes a cold towel should be applied to the head. While in the bath it is well to drink a glass or two of hot water, especially if there is any digestive disturbance. A hot enema to relieve gaseous distension, given either before or after the sitz, depending on how badly it seems to be needed, will be helpful in all cases. It is particularly indicated in diarrhea.

Any intestinal cramp calls for the use of the fast until the cause has been removed. In menstrual cramps also, the fast or an orange diet will be helpful, though often it is not absolutely necessary. In these cases the hot sitz-bath may need to be repeated daily for several days, and may be used even twice a day, in which case being used (usually) not longer than fifteen minutes at a time. Do not use any cold application after these sitz-baths. If the sitz-bath is not obtainable, hot compresses may be substituted, or heat may be applied to the lower abdomen and to the lower back if possible, by any convenient means.

Sometimes pressure upon the abdomen will give additional relief, as in the case of colic. However, in all cases, after applying the measures for immediate relief, attention should be directed toward the causative condition, the cramp itself being only a symptom.

One who is subject to cramps should realize that his circulation and nervous system need building up and he should lose no time in adopting a vitality-building routine suited to his strength and general condition. This is particularly true of those suffering from writer's cramp, or other occupational disturbances of like nature. It sometimes is necessary for musicians, telegraphers, mechanics and others who continuously strain the affected members, to give up their occupations for a time and completely rest the muscles. In some cases of mild affliction this may not be necessary, though it always is beneficial in bringing about a more rapid improvement.

The most effective measure will be found in the Special Exer-

**Cramps,
Intestinal,
Treatment**

**Cramps,
Nerve-Tone
Improve-
ment in**

cise Treatments (see Vol. VI, Sec. 3.) All movements of this kind affecting the muscles, ligaments, nerves and other tissues of the parts concerned should be employed persistently once or twice each day. Alternate hot and cold applications just before retiring will be of great advantage, especially if followed by a cold pack covered with a heavy dry towel or a woolen flannel to remain during the night. Special measures for invigorating the nervous system through the spine, however, will have a direct influence in overcoming the disorder. For this is recommended some or all of the back and shoulder movements or even the more vigorous Special Manual Treatments 11 to 16. If the digestion is at fault or if the patient is below weight, it would be advisable to adopt Complete Fast No. 2, with Fast-Breaking Routine No. 1. (See also *Colic; Diarrhea; Dysentery; Enteritis; Intestines, Diseases of; Menstruation; Uterus, Diseases of; and Writer's Cramp.*)

CRETINISM.—Defective development due to imperfect functioning of the thyroid gland. See *Thyroid Gland, Diseases of; also Imbecility, under Insanity.*

Crisis

CRISIS.—This is the turning point in any disease, whether for better or for worse; also an acute exacerbation in a chronic disease and any acute eliminative process. The crisis indicates that the body is putting forth its best efforts (sometimes its final efforts) to eliminate the toxemia which is causing the abnormal symptoms.

Crisis,
Healing

Nature curists distinguish two kinds of crises. The crisis most people are familiar with they term the *disease crisis*. *Healing crisis* is an excellent term nature curists use to denote the acute symptoms that occur during the natural treatment of chronic diseases when progress is being made. Better progress usually is made in those cases in which these acute symptoms (healing crises) develop than where they do not. They indicate that the vitality has increased and that much of the toxemia already has been removed during the treatment. It is common for these healing crises to develop between the end of the fifth week and the end of the seventh week after beginning natural treatment. Naturally, the symptoms experienced at these times are those that have been suffered in the past by the patient.

Crisis,
Treatment

Treatment. When a crisis occurs it is always more or less a critical period, so careful treatment will be required. This does not mean a great deal of treatment. In many instances a little treatment is all the patient can tolerate. In certain cases the patients require only absolute rest, combined with a free supply of fresh air. The exact measures to be employed will depend in each case upon the nature of the crisis and the disease with which it is associated. It is assumed that the proper treatment is being employed for the particular disease present. If it is not it should

be immediately instituted. The further treatment must be entirely symptomatic.

If a high fever is present a cold sponge bath should be given and ice-bags to the head may be required. If the temperature is subnormal heat should be applied by hot-water bottles, especially to the extremities. If there are signs of heart-failure heat, together with a cold compress over the heart renewed every thirty minutes, will be of value. Hot spinal compresses for ten minutes, followed by a cold compress for one minute, will be helpful in all cases except when there is high fever.

If there is much pain, local heat usually gives the most relief. It may be applied by any convenient method. A maximum of fresh air is of highest importance. No food should be given, and no liquid except water. If the patient is not too weak some of the manipulative movements under Special Manual Treatments (Nos. 1 to 10) in Volume VI may be used. Always be careful not to over-treat. If the symptoms take the form of collapse or coma see under these headings for treatment. See also *Complication*, and *Inflammation, Acute*.

CROUP.—By the simple, unmodified term “croup” (derived from Scotch, meaning to cry aloud) is meant any affection of the larynx in children, characterized by difficult and noisy respiration and a hoarse cough. There sometimes is formed a false membrane.

Croup

True Croup (Membranous croup, croupous laryngitis, pseudo-membranous laryngitis, laryngeal diphtheria) is a diphtheritic inflammation of the larynx, accompanied by the local formation of a false membrane. For general discussion, symptoms and treatment of this condition see *Diphtheria, 2*.

Spasmodic Croup (false croup) is the ordinary croup of children. It is an acute catarrhal laryngitis, but is distinguished from simple inflammation of the larynx by the occurrence of nocturnal paroxysms of coughing and difficult breathing. In common with all inflammations, its primary cause is a toxemia resulting from wrong habits of living. The exciting cause may be unusual exposure to cold and dampness, digestive disturbances, or a cold in the nose or the throat. It is most prevalent between the ages of two and four years, and in those children who have adenoids and enlarged tonsils—those heavily toxemic.

Croup,
Forms

Symptoms. The symptoms of this condition usually develop suddenly. There generally is no fever and no rapidity of the pulse. An attack of false croup generally is preceded by a slight cough. The attack occurs chiefly during the night. The child is suddenly awakened by a feeling of suffocation and a dry harsh, ringing cough. Inspiration is hard and strident, the spasm of the muscles

Croup,
Symptoms

of the glottis causing the crowing or croupy cough. There is a drawing in or a recession of the muscles of the upper abdomen and also of the space above the breast-bone.

These symptoms usually persist for one-half hour to three hours and then subside rapidly. During the day the child seems comparatively well, the attacks recurring each night for two or three nights in succession. The attacks are never fatal, although the parents are usually much frightened, for during an attack the child may seem desperately ill.

Treatment. While the treatment of the nocturnal paroxysms may be of first interest, the constitutional treatment required to remove the real cause of the trouble should not be neglected. When an attack occurs the first thing to do is to see that the patient has an ample supply of fresh air—the more the better so long as the patient is kept warm. After this, an emetic should be administered to induce vomiting, a level teaspoonful of salt in a glass of hot water being effective. Then apply hot packs about the neck and body, renewing every five minutes for an hour if necessary. If the attack still continues change to cold packs, renewed every half hour, being sure to secure good reaction upon each application.

Croup,
Treatment

In any case a brief cold application should be made after the hot ones. For severe spasms a hot immersion bath may be given for about ten minutes, after which the child should be placed in bed and well covered. The immersion is excellent for milder attacks, also. If the interference to breathing and swallowing is sudden and severe lift the arms, as when applying artificial respiration, and slap the chest and the buttocks; also dash a little cold water in the face and over the chest. However, in some cases more permanent relief will be secured by giving the child a teaspoonful of ordinary kerosene (coal-oil) by mouth, plain or on a lump of sugar, preferably plain.

These measures generally will bring quick relief. But if the attack is prolonged the patient should be allowed to breathe steam generated from a croup kettle or similar device as soon as it can be arranged. A tent of sheets can be rigged up over the patient's head so as to confine the steam to the desired location.

Constitutional treatment should be started immediately. No food must be given for at least twenty-four hours, but the patient be encouraged to drink freely of water. This may be lightly flavored with lemon juice and (or) honey if desired. After this a diet of orange juice, allowing as much as desired, should be adhered to until all symptoms subside. During convalescence Milk Diet No. 3 is excellent, limiting the quantity according to the age of the child. Enemas should be employed if natural movements are

not obtained after starting the milk. A continual supply of fresh air is very necessary.

If the coughing continues, the hot chest and throat packs should be repeated daily until relieved. If the reactive powers are good, a cold pack may be substituted, allowing it to remain for two hours. The cold neck pack may be applied every night. After the patient is able to be up, more careful attention is to be given to outdoor play, sun- and air-baths, cool baths and all general health-building measures. Guard against overeating when starting to resume the solid food diet. General manipulative movements (see *Special Exercise Movements*, Vol. VI) should be used every other day to tone up the nervous system.

CURVATURE OF THE SPINE.—See under *Spine, Diseases of*.

CUTS.—See *First Aid in Accidents and Disease*, Sec. 5.

CYANOSIS.—A bluish discoloration of the skin, either general or local, is known as cyanosis. It results from anything which interferes with the normal circulation of the blood, because of which the tissues retain an excess of blood or the blood is not properly oxygenated. When choking or suffocating from any cause the face becomes blue. Almost everyone has experienced localized cyanosis as a result of pressure from tight clothing and from rubber bands around the arms or the fingers. Cyanosis is a symptom, not a disease.

Cyanosis,
Causes

In addition to the physiological causes, it may be due to pathological causes, such as diseases of the heart and the lungs, and locally when the circulation in an important vein is obstructed. Sometimes it results from a mixture of the arterial and venous blood due to some malformation of the heart chambers, such as an opening between the right and the left sides of the heart (a condition which is normal before birth but which should change with the first breath upon birth). A cyanosis of this nature exists from birth. The cause of failure of the heart circulation to change at birth is not known, but the abnormality (resulting in a "blue baby") is permanent.

The chief symptom of cyanosis is a blueness of the skin. This is present in several different diseases in which there is interference with the normal circulation of the blood, a change in the red blood-cells, or a cutting off of the supply of air to the lungs.

Treatment. The treatment for cyanosis will depend, naturally, upon the cause. Constricting clothing should be loosened and a plentiful supply of air provided. In accident cases first-aid treatment for *Asphyxia* should be given. (See under *First Aid in Accidents and Disease*, Sec. 5.) If due to some particular disease the treatment should be directed toward that disease. When due to malformation of the heart chambers the thing to do is to give

Cyanosis,
Treatment

attention to every phase of right living in order to permit the abnormal heart to work with as little embarrassment as possible. Normal diet, fresh air, sunshine, and hot and cold baths are especially important. Localized cyanosis generally can be quickly relieved by the application of alternate hot and cold compresses, it often being better to begin with cold compresses, but always terminating with the cold application.

Cyst

CYST.—A cyst is a small tumor, consisting of a capsule or sac containing fluid or other material. Cysts are of various forms depending upon their location and origin; but the sebaceous cyst, popularly known also as a wen, is the most common. It occurs most frequently upon the scalp, though also upon the face, shoulders and back, moving with the skin. A sebaceous cyst is filled with fat or oil, and probably, in most cases, is formed by the dilatation of a hair-follicle.

Cyst,
Treatment

Treatment. Superficial cysts are comparatively unimportant and harmless growths, so one need not fear any inconvenience if nothing is done with them. Their removal by surgical means usually is advised, but in many cases is not necessary. They sometimes are absorbed in the ordinary course of events, but nearly always such absorption can be hastened by constitutional treatment. A fast of several days is suggested, since the body under such circumstances will consume all available stored up material suitable for nourishment. A cyst should not be bruised; but mild rubbing, together with hot and cold applications for stimulating local circulation, often will help in the absorption. Aside from this a general vitality-building routine will be of advantage. The same plan of treatment may be followed for cysts of any other kind.

Ovarian cysts are fairly common, there being several kinds. These usually cannot be absorbed by fasting or other known method, so their removal by surgery is necessary if they give trouble. However, they sometimes are reduced by fasting.

CYSTITIS.—Inflammation of the urinary bladder. See *Bladder, Diseases of*.

Dancing
Mania

DANCING MANIA (*Choreomania*).—A rare nervous disorder characterized by dancing or other movements of a rhythmic nature, sometimes called epidemic chorea. Constitutional treatment is the same as for Neurasthenia or, in extreme cases, the same as for St. Vitus's Dance.

DANDRUFF (*Seborrhea sicca* or *Pityriasis simplex*).—Scurf or fine scales produced by too dry a condition of the scalp.

Dandruff

In most cases dandruff is not a sign of disease. Frequently it is the falling off of the outward particles of the skin, which, if not frequently removed from the scalp by brushing or in other

ways, become packed into scales which finally fall from the head in this form.

However, dandruff in some instances is associated with constitutional diseases, and undoubtedly in some cases may be due to the want of oil in the skin. Nevertheless, one should remember that it frequently is brought about through want of cleanliness and proper care of the scalp. For instance, if one brushes any part of the body thoroughly he will notice a fine powder will fall from the skin. This is formed of the minute outer scarf-skin particles that are continually falling off.

**Dandruff,
Causes**

The same condition exists in the scalp as in other parts of the body; but the hair, protecting these minute particles, naturally retains them a great deal longer unless they are brushed away. Therefore, at least a small quantity of dandruff nearly always is present, though it is in fine particles, almost identical with the form in which it would appear when brushed from other parts of the body. If the scalp is kept thoroughly clean, however, these particles will be so fine that one can hardly see them.

Treatment. To cure dandruff one should wash the scalp at least twice a week with warm water and some good grade of soap. Soap made of vegetable oil and containing a small amount of alkali is usually the best. Super-fatted soaps are to be preferred. Imported Castile soap or liquid green soap are recommended. Soap bark may be used, or raw egg, which is very satisfactory, especially for those having very dry skin. If one will dry the hair in the sun after this washing he will gain materially thereby.

**Dandruff,
Treatment**

In addition to washing twice a week, the scalp should be brushed thoroughly at least once every day, and following each brushing the hair should be pulled slightly all over the scalp. Massage of the scalp also is of value.

If there is any constitutional defect it must be remedied by following the general instructions for this purpose found elsewhere in these volumes. Especially if the general health is impaired one should adopt a general vitality-building routine. (See Section 6, this volume.)

Though lack of proper care of the scalp is the principal cause of dandruff, excessive meat-eating and continuous indoor confinement under electric light are contributory causes. A simple vegetarian diet and plenty of sunlight upon the scalp will check this condition, in many instances. An outdoor life, preferably with little or no head covering, is to be highly recommended.

If one will persistently adhere to these suggestions he can depend on removing most of the dandruff in a very short time.

Seborrhea oleosa is an affection marked by extreme oiliness of the skin. It is due to a functional disorder of the sebaceous glands,

**Dandruff,
Oily**

characterized by an excessive and abnormal secretion of sebaceous matter, forming upon the skin either as an oily coating or in crusts and scales. In this variety the secretion may become so great as to collect in minute drops of a clear yellowish fluid upon the surface.

Constitutional *treatment* is necessary to overcome this oiliness. The free use of fruits, vegetables and green salads in the diet is especially urged. This condition will admit of more frequent washing than ordinarily is needed, but not too much soap should be used. Dry friction baths of the skin of the entire body, together with the securing of air-baths and sun-baths at every opportunity, are of the utmost value. Nothing else will accomplish such good results.

DANDY FEVER.—See *Dengue*.

DEAFNESS.—See *Ear, Diseases of*, and *Eustachian Tube*.

DEATH, SIGNS OF.—See *Manifestations of Disease* in this volume.

DEBILITY, GENERAL.—See *Vital Depletion*.

DEBILITY, NERVOUS.—See *Neurasthenia*.

DEGENERATION.—Deterioration of the structure of any tissue so that cells cannot function properly. Atrophy is a form of degeneration. See *Muscular Atrophy*, also *Fatty Degeneration*.

DELIRIUM.—A disturbance of the mental processes, characterized chiefly by illusions, hallucinations, excitement and restlessness. It is a symptom found most often in acute diseases characterized by high fever, but it may occur in insanity and other brain diseases and poisoning by alcohol, morphine or some other drugs. It may also be due to an injury to the head, or it may follow exhaustion resulting from extreme physical labor, severe hemorrhage, or fright from some harrowing experience. The alcoholic variety is known as *Delirium Tremens*.

Symptoms. Delirium occurs in several forms: It may be of the low muttering variety; or it may be acute, the patient talking at random and having hallucinations; or it may be almost maniacal in character, in which the patient struggles, yells and has to be forcibly restrained by attendants. Such a mental condition is serious. Though it often lasts for only a few hours, it may continue for days.

Delirium Tremens (Acute alcoholic delirium). (See *Alcoholism* in this volume.) A condition of delirium characterized by sleeplessness, tremors, horror and hallucinations. It is produced by continued and excessive consumption of alcohol. Some authorities declare that it is the result of renal insufficiency, added to the alcoholic poisoning. In other words, when the kidneys fail to do their work, there is an accumulation of the ordinary body waste-poisons as well as the alcoholic toxemia.

Delirium,
Causes and
Symptoms

Delirium
Tremens,
Causes

Treatment. When the delirium is due to high fever, there is nothing to be done except to continue the proper treatment for the causative disease. As in all high fevers, this treatment will include the daily application of the cold wet-sheet pack, continuing to the point of free perspiration. Be sure the patient has plenty of fresh air and keep the bowels open.

When delirium occurs in insanity, a hot immersion bath given at a temperature of 103 to 105 degrees, continuing until the patient becomes quiet, is effective. A cold towel should be kept on the head while in the bath. When quiet, the temperature of the bath should be lowered to neutral (about 98) and continued for an hour or two more. If the patient is constipated and is not too violent, it is best to give an enema before placing him in the bath. One should rigidly adhere to the constitutional treatment for the particular form of insanity present.

When exhaustion is the cause of the delirium, all that is needed is rest, quiet and fresh air, though a hot enema often will act as a general stimulant and hasten return to normal. Hot spinal compresses and massage may help. In case of injury, surgery may be required and in any case any open wound is to be properly dressed. If there is fever, treat as above described; or if the patient becomes violent, treat as for the delirium of insanity. If the symptoms are not too severe, it often is best to avoid any treatment except the proper care of the wound.

In the *treatment of delirium tremens* the patient should be induced to drink large quantities of hot water. If this is impossible, inject two or three quarts of hot water (115 degrees) into the rectum and have the patient retain it if he possibly can. The purpose is to flush the body with a large quantity of water, with a view of diluting and washing out the poisons that have given rise to these serious symptoms.

If he finds the taste of water unpleasant it may be flavored with lemon juice or any other acid fruit, or with honey, though it is better to take the water without flavoring. A minute quantity (a few grains) of salt in the water sometimes will make it more palatable.

While encouraging the patient to drink large quantities of water, a hot-blanket pack or hot immersion bath (103 to 106 degrees) may be given, or, if the patient's vitality is low, a hot abdominal pack may be used. This may be followed by a hot spinal pack, provided the symptoms of the complaint do not rapidly abate. The hot-blanket pack or full hot bath, however, should be given in every instance, if possible, to bring about the most active elimination and to accomplish that in which the overtaxed kidneys have failed.

If fever is associated with the complaint then these packs may be cold instead of hot, preferably the full cold-sheet pack. Often cold cloths or even ice-bags may be applied advantageously to the head while using the hot spinal pack. They are always of value for relieving cerebral congestion.

Delirium
Tremens,
Fasting in

In delirium tremens it would be best to avoid food altogether for some days, if such a strict routine does not worry the patient too much. It would be decidedly to the advantage of the patient in this disorder to adopt the milk diet after this fast. The full milk diet is inclined to eradicate or wash out the impurities by flushing the body with an unusual quantity of fluid and increasing quantities of blood. It is especially valuable following a condition of this kind. However, it is a good plan to begin to take as large quantities as possible when first starting the diet, provided the fast is not continued too long. Even when the fast is continued seven to ten days it would be a good idea to try to follow the regular instructions given in Milk Diet No. 2 on the second day after breaking the fast. The first day a half-pint of milk may be taken every sixty or ninety minutes.

Delirium
Tremens,
Hydro-
therapy in

One of the best methods of treating delirium tremens by hydrotherapy is as follows: The patient, nude, lies on a blanket over a waterproof sheet. A plentiful supply of very cold water at hand, large spongefuls are dashed to the face, neck, chest and body as rapidly as possible, then the body rubbed dry with a coarse towel. This process is repeated once or twice. Then the patient is turned over and the back of the head and the spine dashed two or three times, the body fully dried by towel friction between each two cold-water applications. Usually, the patient will be sound asleep by the time he is made comfortable after the final drying.

Or, if the patient is sufficiently vigorous, a cold douche to the entire body once daily for several days will be valuable. As an alternative, a cold half-bath may be recommended for its reflex influence in relieving cerebral excitement or congestion. Mildly sunburning the body by ultra-violet rays is a very valuable additional aid in treating this condition.

DELUSIONS.—See *Insanity*.

DEMENTIA.—See *Insanity*.

Dengue,
Causes

DENGUE (Break-bone Fever).—This acute infectious disease occurring mostly in Egypt, India, Persia and the West Indies, but sometimes in the southern United States, is supposed to be due to a parasite carried by a mosquito, whose bite infects the patient. Whatever the immediate cause, the symptoms indicate that it is an acute eliminative crisis. In many respects it resembles malaria, but it is not so difficult to overcome. The disease some-

times occurs in epidemics, but sanitation and right living will prove effective preventives.

Symptoms. After a one or two days' period of incubation the symptoms of the disease suddenly appear. These are chills, severe headache and excruciating pains in the muscles and the joints. The knee-joints and the muscles of the back are the most severely affected as a rule. This gives the patient a peculiar strutting gait on attempting to walk and suggests the name "dandy fever," by which it is sometimes known.

Dengue,
Symptoms

The face and the mouth are suffused, the eyeballs ache, the mouth becomes sore and a rash appears over the entire body. Between the second and the fifth day, frequently about the third, there is a remission of these symptoms and, while the pains disappear, there develops sweating and sometimes bleeding from the nose. The remission lasts for two to five days, after which the original symptoms return, though not in as severe a form as at first. This recrudescence lasts for one to two days, when convalescence begins.

The eruption, which rarely is absent, appears earliest upon the palms and the backs of the hands, later covering the trunk, thighs, and legs. At the beginning it resembles somewhat the eruption of measles, being reddish, which color disappears on pressure. Later the spots may coalesce and resemble the rash of scarlet fever. It persists for several days and is followed by fine desquamation or peeling.

Dengue,
Eruption

Convalescence usually is fairly rapid but may be slow owing to the intense prostration caused by the disease. Pains in the joints frequently recur intermittently for some weeks after convalescence.

Rare complications are enlargement of the glands of the neck, hemorrhages, boils and inflamed testicles.

Treatment. To those who have read the introduction to this volume the treatment of this disease will be plainly indicated by the symptoms. The fever indicates that no food should be taken. Complete Fast No. 3 should be used, employing hot or cold water as desired, but if the water is not of unquestionable purity it should be boiled.

Dengue,
Treatment

When treatment is begun promptly the recurrence of the fever after its first remission, which is common under orthodox treatment, may often be avoided; but for safety's sake it is well to continue the fast for two days after the fever has subsided. The usual length of the fast will be seven or eight days, after which Fast Breaking Routine No. 2 may be used and followed by Milk Diet No. 3 if a satisfactory grade of milk can be obtained; otherwise, the fast-breaking routine may be followed by a diet mainly

of raw foods, chiefly fruits and vegetables, and by drinking plenty of water between meals. Enemas are to be taken daily while fasting and as needed thereafter. If the fast should be broken prematurely and there is a return of the fever, it must be immediately resumed until the temperature is again normal. Plenty of fresh air is necessary.

During the fever stage of this disease the cold wet-sheet pack should be given daily, allowing it to remain for one to two hours or until there is free perspiration. Follow with a brief cool sponge. As soon as fever is gone the patient may be allowed to rest a day without treatment. Then a cold abdominal pack may be given in the morning and hot and cold spinal compresses in the afternoon of each day until recovery is assured. Thereafter, a general vitality-building routine suited to the strength of the patient should be employed. Always be careful not to over-treat, especially while the acute symptoms are marked.

**Dermatitis,
Causes**

DERMATITIS.—An itching skin inflammation which may occur in various forms and from various causes. Almost any skin eruption could be called a skin inflammation or dermatitis; but the term is usually applied to those conditions resulting from outside causes rather than from a general toxemia, though this cause usually is present to some extent. The most common forms of dermatitis are due to irritation from chemicals or other substances with which the patient comes in contact in his work, or to poisoning by certain plants or to the use of drugs.

The drugs most likely to produce a dermatitis include arsenic, belladonna, bromides, iodides, quinine, digitalis, mercury, morphine and salicylic acid. Among plants that poison the skin are poison ivy and poison hemlock, though some people are poisoned by the foliage of celery, certain primroses and various other more or less common plants.

Dermatitis may result from irritating bodily discharges, such as inflammatory exudates, highly acid urine or perspiration or the watery stools of diarrhea. This form is especially common in infants.

There is also an acute infectious dermatitis which occurs in epidemics but it is comparatively rare. Various forms of chronic dermatitis also may result from external irritants and the use of drugs as well as other causes.

**Dermatitis,
Symptoms**

Symptoms. The skin feels hot and there is a general erythema or redness of the surface. There may be some hardness or slight swelling of the skin, often a burning heat in the skin and in some cases itching. If the inflammation is severe enough, the epidermis will peel at the termination of the acute symptoms, and be more or less constant or frequent in chronic cases.

Treatment. If the inflammation is due to irritating chemicals, all that is necessary is to avoid these and the body will soon restore a normal condition. If there is great itching, local cold compresses will give relief. If the skin is dry, olive oil will both soften and protect it.

Dermatitis,
Treatment

When drugs are the cause of the dermatitis it will not only be necessary to discontinue their use but frequently to take constitutional treatment to eliminate them from the body. This would include fasting, water drinking, enemas and eliminative baths or packs, much the same as for any form of blood-poisoning. Such constitutional treatment may be necessary in cases resulting from poison ivy or poison sumac also. Detailed treatment for these conditions will be found under *Poisons* in *First Aid in Accidents and Disease*, Sec. 5.

When the trouble is due to irritating bodily discharges constitutional treatment is always necessary, because there would be no such abnormality of discharges if the body were not toxemic. The exact measures required will depend upon the nature of the abnormal condition. In these cases the dermatitis is only a complication of the primary disorder. For local treatment, observe more strict cleanliness and protect the skin with olive oil or borated talcum powder.

In the infectious form of dermatitis, strict cleanliness and the use of antiseptic ointments will be required. An application of sulphur and vaseline is sometimes advisable in such cases. If there develop any general symptoms, such as fever, add constitutional treatment as above advised. General right habits of living, strict cleanliness and the use of sun-baths will be found excellent preventives of all forms of dermatitis, including the infectious. Sun-baths to the extent of moderate sunburn are excellent in the treatment of most forms of dermatitis. See also *Skin Diseases*.

DENTITION.—(“Cutting Teeth.”) The symptoms which may accompany dentition, when disturbing, may be relieved by having the child fast for a day or two, or by feeding fruit juices exclusively. The symptoms are due more to wrong diet or feeding or intestinal toxemia due to insufficient bowel elimination, than to the natural process of cutting teeth. See also *Teething* in Vol. IV.

Dentition

DIABETES.—*Diabetes mellitus* is characterized by the continued presence of sugar in the urine, an increased secretion of urine, great thirst, voracious appetite, loss of weight, weakness, a dry and itching skin, boils, and often, in the late stages, gangrene of the extremities, cataract and a tendency to coma. The urine is pale in color, of sweet odor, high specific gravity and contains from a trace to a large per cent. of sugar, sometimes also acetone.

Diabetes
Mellitus,
Symptoms

**Diabetes
Mellitus**

The onset of Diabetes mellitus usually is gradual, though, after some severe shock, occasionally it is sudden. While all ages, from birth, may be attacked, it is commonest between the ages of 30 and 60. In youth it is likely to be rapid and severe. Males are slightly more susceptible than females. It is likewise commonest in stout persons. The Hebrew race is particularly susceptible. Heredity is said to play some part in the development of the disease.

The dangerous factor is not so much the presence of sugar in the urine, as the inability of the body to appropriate the carbohydrates of the diet to advantage, resulting in faulty nutrition and a gradual undermining of the health.

Diabetes is increasing in prevalence, especially in the young, with whom it is a serious disease and especially likely to be fatal. The boils and the skin eruptions of young adults not infrequently are the effects of a diabetic condition and call for a careful examination and urine analysis, as early treatment is important.

**Diabetes,
Causes**

Among the theories as to the cause of diabetes are that there is a disturbed function of the pancreas, as induced disease or injury of this organ causes sugar to appear in the urine; that during digestion the liver fails to change the absorbed sugar into glycogen and that the sugar remains in the blood and is then eliminated by the kidneys, or that the glycogen is changed back to sugar too rapidly and the same condition arises; that it is due to an injury to the floor of the fourth ventricle of the brain. The writer knows of several cases where the trouble appeared following a fall.

**Diabetes,
Treatment**

The overconsumption of carbohydrates may be a cause; but present-day investigators are suggesting that the overingestion of proteins is really more potent as a cause of the disease and that the overconsumption of meat in particular is responsible for this dangerous complaint, to say nothing of the abnormal, excited pace to which the human glands are now subjected. Doubtless overeating in general—of proteins, sugars, starch and fats—with improper diet otherwise is a predominating cause, though general improper care of the body is responsible for the affection in most cases.

**Diabetes
Insipidus**

Diabetes insipidus, a disease occurring chiefly in early adult life, is supposed to be of nervous origin. The chief symptoms are great thirst with an enormous flow of urine of low specific gravity, containing no sugar. The general health of the patient remains good, most cases recovering after a while, but in others the disease may last for as long as thirty to fifty years.

Treatment. There has been a great change in the treatment of diabetes mellitus in the last few years. Indeed, the present-day treatment is very similar to the one presented below. Treatment

must begin early if recovery is to be expected. When the disease has so advanced that the organs have degenerated, little hope of full recovery can be given by any method of treatment, but the method herein advocated should be tried.

It must be remembered that simply to free the urine of sugar is not the essential factor in treatment. The sugar which has already passed through the kidneys can do no harm; but the excess sugar in the blood, together with the acetone bodies producing a poisonous chemical condition known as acidosis, is capable of doing a great deal of injury to the tissues of the body. It is also essential to remedy the conditions in the organs responsible for the trouble.

To get rid of the excess of sugar in the blood, and incidentally to make the urine sugar-free, abstinence from food is essential. This should continue until there is no trace of sugar in the urine and for one day thereafter. In most cases it is better to take orange juice than the absolute fast, as the danger of acidosis developing on a strict fast is greatly reduced on the orange diet. In some cases the milk diet is of value after the fast; but care must be exercised that the fats are not metabolized into sugar, or that an acidosis is not induced, in which case a fatal coma may develop. It would be best to begin with skim milk. Then if sugar does not appear in the urine and there are no signs of pronounced drowsiness, which is the first symptom of acidosis, the use of whole milk may be cautiously started. Some cases getting the best results have taken a milk diet (No. 1 usually). Should acidosis appear the patient must be fed carbohydrate food immediately, such as corn-starch, cereal gruels, crackers, or puddings. A fresh fruit and raw vegetable diet with a small amount of cottage cheese (for its protein) is excellent in many cases.

Diabetes,
Fasting and
Diet in

If the milk diet is not used, a graded diet must be followed. One protein food must be selected, and to this be added first the foods containing five per cent. of carbohydrate; if there is no appearance of sugar in the urine after a week, the ten per cent. carbohydrates may be added for a week, and next week the fifteen per cent. A list of these foods appears in Section 6 of this volume. At the first appearance of sugar in the urine a fast is to be taken, then less carbohydrate given. When a strict protein diet is used the patient is depleted in strength and weight, and in many cases the sugar continues in the urine notwithstanding the diet. Unless progress is very satisfactory when on solid food, it is well to fast or to take oranges one day every seven to ten days. A list of foods and the percentages of their contents is given in Volume II.

Exercise is recommended in this disease because by it the sugar in the body is thus burned up more completely than when

the body is at rest. Daily long walks coupled with deep breathing are especially valuable. Calisthenics in which every muscle is used should be practiced daily according to the strength of the patient.

Warm baths followed by cold rubbings taken before retiring will aid in skin elimination and prevent restlessness at night. Alternate hot and cold sitz-baths and sun-baths may be also employed, though many diabetics have unfavorable reactions from sun-baths. Although there is an excess of urine, free water drinking should be encouraged, as this prevents injuring the kidneys by the sugar passing through them.

The entire treatment may have to be repeated many times, but it is the only way in which relief may be had.

In *diabetes insipidus* the same plan may be used, but with more liberty in the use of carbohydrates.

Insulin

Although it is not a cure, insulin, a preparation of a substance obtained from the pancreas discovered by a Canadian physician, is used largely by daily hypodermic injections, in the treatment of some forms of diabetes, with the idea of keeping the sugar content of the blood down to normal. It is salutary in some cases, although temporary in its effect. Many physicians prefer pancreatic substance, dried and in capsule or tablet form, to be taken by the mouth. It is much more convenient, less expensive and usually is equally effective for continued treatment.

Diarrhea, Causes

DIARRHEA.—This is an abnormal frequency and thin consistency of the bowel evacuations, usually accompanied by griping pain and straining or tenesmus. It may be due to poisons in the intestines or the blood-stream or to nerve irritation, paralysis or emotional shocks. The great majority of cases result from the need for bowel cleansing. Thus diarrhea often follows constipation. Overeating and the consumption of partially spoiled articles are likely to produce diarrhea.

Infants often develop diarrhea in the summer when milk and other foods are more susceptible than during cold weather to contamination with bacteria and to spoilage.

Poisons which, being in the blood-stream, may give rise to diarrhea include those of uremia, malaria, erysipelas, influenza, septicemia and cholera. Nervous diarrheas generally result from fright or shock, but may be due to paralysis of the nerves which inhibit intestinal peristalsis or to reflex nerve irritation from almost any part of the body or to spinal subluxations.

Practically all forms of diarrhea are acute at the start, but may become chronic if neglected.

Diarrhea, Symptoms

Symptoms. When the causative condition involves the small intestine the looseness of the bowels may be slight or profuse,

the stools are watery, greenish or yellowish-brown and there is not much mucus. The abdomen is more or less distended with gas; the tongue is dry and coated, there are thirst, loss of appetite, often weakness and faintness, sometimes prostration.

When the large intestine is affected the stools may contain blood and mucus, there is much straining or tenesmus, and there is tenderness over the colon. (See also *Enteritis*, and *Intestines, Diseases of*.) Severe conditions in the colon, with great straining and small stools consisting mostly of mucus and blood and accompanied by great prostration, constitute what is known as *dysentery*, which see.

Chronic diarrhea presents the same general features as acute diarrhea except that the symptoms are not so severe and are likely to be more or less intermittent. The feces are thin and watery and are evacuated from two to eight or even more times a day.

Treatment. When diarrhea is due to a particular disease, such as malaria, cholera, influenza and others mentioned above, follow treatment as advised under the respective heading. This plan must be adopted in the nervous cases also. Where there is fright or shock recovery usually is spontaneous, but first aid treatment for the shock may be needed. If the cause is entirely nerve inhibition from spinal subluxations, spinal adjustment will be all that is necessary. These cases usually are caused by injury to the spine, such as blows, jars or jolts, or sudden or long-continued or often-repeated straining posture.

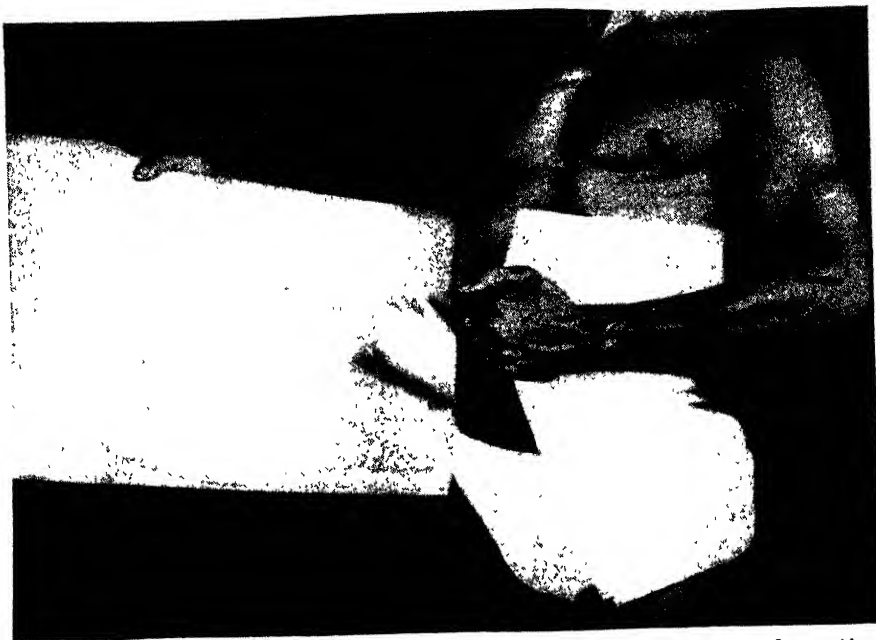
Diarrhea,
Treatment

When the diarrhea is due to poisons in the intestinal tract the treatment consists merely in thoroughly cleansing this part of the body. Absolutely no food should be given, as even the best of foods will be but poison at such a time. The body is making every effort to clean out the intestinal tract, so nothing should be taken into it until this has been accomplished. Complete Fast No. 2 may be used, or if No. 3 can be taken without too much aggravation of symptoms this may be employed. In most cases No. 3 can be used after a day or two, if not at first. It is well to drink at least part of the water hot, but unless the water is known to be entirely safe it is best to use previously boiled water. Hot water is more stimulating to peristalsis than cold water; but it is also somewhat more cleansing and helps to relieve pain, so that the first objection does not contraindicate its use.

Diarrhea,
Fasting in

A neutral enema should be given daily while fasting. In some cases hot salt-water enemas will be better. After the first few days a cool enema of a pint of water at 75 or 80 degrees may be injected after the hot one has been eliminated. This helps to restore the tone of the intestinal walls. When available, colonic

Diarrhea,
Hydro-
therapy in



In acute diarrhea, the dry abdominal bandage may be used when the patient has sufficient strength to walk about. The end of bandage to be wound around the body is lightly pinned or otherwise fastened to some suitable object. The method of applying the bandage is to walk toward the point at which it is fastened, meanwhile winding the sheet around the body. This bandage is used for similar purposes as compresses applied lying down and may be used in typhoid fever (during convalescence), and in intestinal influenza, also in eczema, psoriasis and similar diseases.

irrigations, using hot and cold water alternately two or three times each, will be beneficial.

The fast should be continued for at least a day after the diarrhea ceases. The exact length of the fast will depend upon the amount of toxins to be eliminated and the patient's reactive powers, but will seldom exceed ten days. In stubborn chronic cases, twice this time may be required. Fast-Breaking Routine No. 2 may be used and followed by Milk Diet No. 1 for a week or two, then Milk Diet No. 3 may be taken for a similar period. If at all possible, it is well to continue the milk for a month and thereafter to follow a diet of strictly natural foods, with special care as to combinations and avoidance of overeating.

In the case of infants the quantity of milk and fruit must be limited according to the age. If the raw milk does not come from a reliable source or cannot be kept properly cooled it would be better to use the pasteurized milk, as the deficiency caused by pasteurization can be made up to a large extent by the addition of fresh orange or lemon juice.

In severe cases hot abdominal packs will give additional relief. They may be applied once or twice a day for a half hour at a time, maintaining heat by hot-water bottles and giving a brief cool sponge after the pack is removed. Instead of the packs, any other convenient means of applying heat may be employed.

There often is a tendency toward constipation after the excessive activity of the diarrhea, so it may be necessary to continue the enemas for a time. After the diarrhea ceases, in some cases neutral enemas (at 98) may be given for several days, gradually reducing the quantity of water to $1\frac{1}{2}$ pints. Then one-pint cool enemas may be employed until normal movements are obtained. The alternate hot and cold sitz-bath also may be used to advantage after eating is resumed. Of course, if constipation does not occur these special measures will not be necessary, though the sitz-baths should be generally beneficial in any case. In all cases a general vitality-building routine suited to the strength of the patient should be employed.

In no case should there be any attempt to check the diarrhea by the use of drugs. The extra elimination is necessary at the time or the body would not bring it about.

DICK METHOD.—Injection of a toxin-antitoxin for the purpose of (presumably) preventing scarlet fever (which see).

DIPHTHERIA.—This is one of the most dreaded of diseases considered communicable. It is an acute eliminative crisis, complicated by the presence of the Klebs-Loeffler bacillus and its toxins, and characterized chiefly by the formation of a false membrane upon the mucous membrane of the throat, though this may occur upon any mucous membrane or even upon the skin.

**Diphtheria,
Causes**

The disease is supposed to be due entirely to the bacteria; but this is not so, being demonstrated by the fact that many persons have been found to have this bacteria in their throats without any other signs and no symptoms of diphtheria. These persons are called "healthy" or "contact" carriers. They seemingly are immune at the time; but they are believed by some authorities to be the means of carrying and conveying the disease to others, though doubtless many of them never are responsible for a single case. The disease itself is carried most directly by kissing, or by the interchange of pencils by school children, as well as by other direct means. Cats that have been handled by persons ill with the disease can carry the germs to others, in their fur. One attack of diphtheria will not prevent the occurrence of subsequent attacks.

**Diphtheria
Carriers**

Since the germ is blamed for the disease, the orthodox treatment consists of the injection of an antitoxin; but this cannot be recommended as a substitute for constitutional methods of treat-

**Diphtheria,
Cause**

ment. Moreover, it is inadvisable, as natural methods of treatment will be found more effective. The real cause of the disease is an accumulation of toxins in the body, resulting from wrong habits of living. These furnish fertile soil for the growth of the germs, which then add their toxins to the toxins already present.

This disease occurs most often in children, but occasionally in adults. It can be prevented by right habits of living.

**Diphtheria,
Symptoms**

Symptoms. There usually is a period of incubation of two to five days after infection, two days being the most common. Following this period of incubation the early symptoms begin to appear—general debility and malaise, a temperature of about 101 degrees, rarely higher, and a slight hoarseness. In infants there may be convulsions. The face becomes rather pallid. There may be no appreciable sore throat at this time. Following these early symptoms the disease usually begins to develop into one of three different types. These are

**Diphtheria,
Faucial,
Symptoms**

(1) *Faucial diphtheria*, in which there is little pain, crying, or other complaint upon the part of the patient. Symptoms include difficult swallowing, a general inflammatory condition of the tonsils, with tenderness and slight swelling of the glands of the neck and beneath the jaw. A false membrane now begins to appear upon the tonsils, often spreading to the palate and the uvula. This pseudomembrane is pearly white at first, and is firmly attached to the parts beneath. Attempts to remove it often cause bleeding. The glands mentioned continue enlarging, temperature varies and there may be some pain upon swallowing. The general condition is that of a toxemia. The breath becomes heavy and the tongue is furred. There is a lessened amount of urine, which usually contains albumin. In the more severe cases the pulse becomes rapid and feeble, the face shows an ashy pallor, the temperature varies in degree but often is high, the distribution of the membrane becomes extensive and there frequently is a fetid discharge from the nose. There may be vomiting and marked prostration.

**Diphtheria,
Laryngeal,
Symptoms**

(2) *Laryngeal diphtheria* (true croup). This form is nearly always preceded by the faucial type. All of the symptoms of that type are usually present. When faucial diphtheria develops into laryngeal diphtheria there will occur harsh cough, hoarseness, noisy breathing and recession or drawing in of the tissues above the collar bones and above the upper end of the breast-bone during inspiration, which is labored. There will be sudden attacks of dyspnea or difficult breathing lasting for several hours at a time, due to a spasmodic contraction of the glottis.

Sometimes no further symptoms appear and, the amount of membrane formed in the larynx being slight, recovery may take

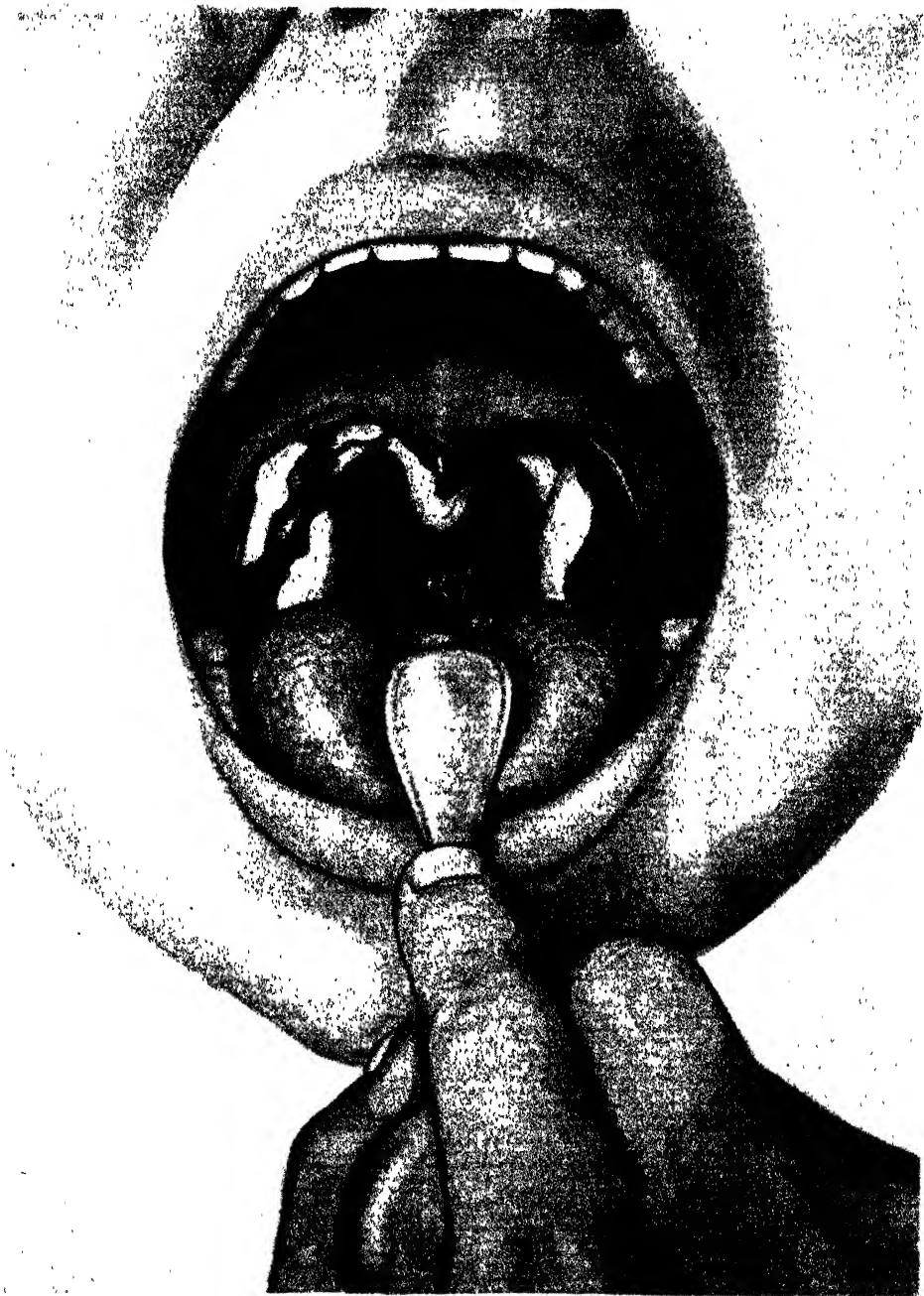


PLATE 98. In diphtheria, the pearl-gray exudate which forms in the throat spreads over the tonsils, the uvula and fauces.

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place. In other cases, while the onset may not be so sudden, the dyspnea is continuous and not spasmodic, the face becomes livid and general cyanosis supervenes. There is restlessness and sometimes coma. These symptoms are due to the spreading of the diphtheritic membrane further into the larynx, causing occlusion of the glottis, often fatal asphyxia. Septic pneumonia often supervenes. This type is very serious and the prognosis is bad.

(3) *Nasal diphtheria*. This may be a primary condition or it may be secondary to the faucial type. If primary it frequently is not noticed, as the symptoms usually are slight, the principal one being a whitish, grayish or brownish nasal discharge generally offensive and acrid, producing some excoriation (rawness) of the upper lip and the edges of the nasal openings. If nasal diphtheria follows the faucial type the symptoms are more marked and there may be bleeding from the nose. In either form the amount of diphtheritic membrane formed in the nose may be slight.

Diphtheria,
Nasal,
Symptoms

Among the many so-called complications of diphtheria are bronchitis, bronchopneumonia, heart affections, and albuminuria, which occasionally progresses into nephritis or Bright's disease.

Among the sequelæ or after-effects of the disease post-diphtheritic paralysis is common and is a very serious matter in many cases. *Heart-failure* is another condition likely to follow severe diphtheritic infections. This usually occurs in the third week, and upon getting out of bed in those cases which have some form of diphtheritic paralysis or in non-paralytic cases allowed to get up too soon, or sometimes in patients who are still in bed but who suddenly exert themselves. Serious symptoms in these cases are severe pains in the chest in the region of the heart and irregular heart action. The heart condition is an acute dilatation.

Post-diphtheritic paralysis occurs in about ten to fifteen per cent. of all cases, though it usually follows the severe cases. It involves most commonly the muscles of the throat, causing the patient to speak indistinctly and allowing fluids to regurgitate through the nose on attempts to swallow. However, it affects other groups of muscles, such as those of the eyes, limbs and trunk.

Post-
Diphtheritic
Paralysis

Sequels and complications of diphtheria, or of any other acute febrile disease, are often the result of neglect and wrong treatment rather than of the disease itself. Properly treated from the start, none of these diseases will have such conditions as a result specifically of themselves, unless it be in an occasional rare case in which the individual is in such pitiable state of lowered vitality and resistance that he cannot respond well to any treatment, natural or otherwise.

Treatment. Treatment should be started promptly before the symptoms have developed sufficiently for a definite diagnosis of

Diphtheria,
Treatment

diphtheria. To wait for this is folly, for it allows the germs more of a chance to multiply and for them and their toxins to spread throughout the body, thus increasing the general symptoms and the possibility of complications, as well as leading to more trouble with the false membrane, which may interfere with breathing.

Diphtheria,
Hydro-
therapy in

As soon as the patient complains of not feeling well (whether diphtheria or any other acute fever disease is suspected or not), all food should be stopped and the bowels thoroughly cleansed with warm enemas. The free drinking of hot water is advisable. The throat should be gargled several times a day with equal parts of lemon juice and water, though if this seems too strong it can be further diluted. Lemon juice may be used also to flavor the drinking water. A cold neck pack should be applied at night and allowed to remain until morning or until dry. For quick efficiency a gargle of fresh, ripe pineapple juice is strongly advocated by some authorities.

If the symptoms continue and increase and fever sets in, a cold wet-sheet pack may be given daily for an hour or more. If necessary to bring about quick reaction hot-water bottles may be placed about the patient. Four or five hours after the pack, hot chest and throat compresses may be applied for thirty minutes, at the same time the patient may be allowed to swallow or to melt in the mouth small pellets of ice. This helps to inhibit the growth of and to loosen the false membrane. The gargling may be increased in frequency to every two hours. The fast and water drinking, of course, should be continued and the enemas administered daily.

If the membrane continues to cause trouble the throat may be swabbed with pure lemon or pineapple juice, using absorbent cotton on a wooden applicator. If the membrane is in the larynx, this cannot be used, but a spray of peroxide of hydrogen (50 per cent.) may be employed. In the most severe cases where the larynx is affected, intubation, or the insertion of a special tube in the larynx, may be required; but when proper treatment is started promptly the disease seldom if ever progresses to the point where such treatment is necessary.

Diphtheria,
Local Treat-
ment

Gargling with ice-water is excellent in some cases, though to be most effective it should follow inhalation of steam or gargling with fairly hot water. The water should be absolutely ice-cold and the gargle should last only a moment and then the water ejected. This treatment cannot be used, of course, with very young children. Hot vapor often is effective in children and can be provided for by some simple means. (See *Steam Inhalations*, under *Water and Health*, Vol. VI, Sec. 2.)

The maximum of fresh air at all times is necessary, though if

there should be periods of particularly difficult breathing or coughing it would be well to allow the patient to inhale steam, as in the case of croup, until relieved. The inhalation of ozone from a special generator may prove helpful in some cases, and so may the local application of ultra-violet rays to the throat and the larynx.

The fast should be continued until a day after all acute symptoms have subsided. It is much safer to fast a little longer than necessary, instead of not long enough. The fast should be followed by two days on fresh fruit, the first day taking the juice only. Milk Diet No. 3 may then be followed until the normal condition has been restored. In the case of children, the quantity of milk allowed is limited in accordance with the age. The wet-sheet packs may be discontinued as soon as fever is gone and all the other special treatments mentioned may be discontinued as soon as the fruit juice is started, except that it would be well to continue the gargling several times a day for about a week. If the patient has become weak, alternate hot and cold spinal compresses may be applied daily after starting the milk diet. Enemas should be continued if necessary.

When the proper treatment is used there should be no complications, which are supposed to be almost unavoidable concomitants of the disease. If the proper treatment is not begun until late and complications do develop, they should be treated in accordance with their nature. See *Complications*.

The Schick Test. In many public schools in America it has been the practice to subject the pupils to a test, called the Schick test, given to determine whether a child is or is not susceptible to diphtheria. If this test, which is given in the form of an inoculation into the skin of a certain amount of toxin, shows a negative reaction, the child is supposed to be at the time immune. If the reaction is positive it is supposed to indicate susceptibility to diphtheria. In positive cases the children are believed to need an immunizing dose of anti-diphtheritic serum in order to make them temporarily immune. Anti-diphtheritic serum, called diphtheria *antitoxin*, is used in the treatment of the disease on the theory that it will counteract and terminate the activities of the bacilli which produce the disease.

Diphtheria,
The Schick
Test for

Toxin-antitoxin. At the present time, however, many physicians and boards of health are practicing the inoculation of children with *toxin-antitoxin*, which is a combination of diphtheria toxin and the diphtheria antitoxin in specified amounts. The claim is made that children treated in this way become immune to the disease and that the protection will last in the neighborhood of ten years or even longer, by which time the child will have grown

beyond the ordinary period of susceptibility to diphtheria. The serum is given in three doses, from one to two weeks apart. There often are very unpleasant reactions.

But these methods of testing and of so called immunization and protection are not in harmony with the maintenance of health by keeping the blood stream and life-cells in normal condition. *Nothing should be necessary to protect against disease or to cure disease that is not necessary to preserve ordinary health.* Anything else given for such purposes may have some detrimental effect upon the immediate or future health of the child or adult who may be subjected to such treatment

DIPSOMANIA.—See *Alcoholism*.

DISLOCATION.—This is a disarrangement of the normal relation of the bones which form a joint, and is usually the result of trauma, or injury.

Dislocation

When dislocation is believed to have occurred a layman should leave the patient alone except for merely placing the injured part in the position which gives least pain. Prompt surgical aid should be summoned, or the services of a competent bone-setter may be employed when a physician is not available. (See also *Dislocations* in *First Aid in Accidents and Disease*, Sec. 5.)

DIURESIS.—An abnormal increase in the secretion and flow of the urine, to be regarded as a symptom rather than as a disease in itself. It is characteristic of diabetes. See *Diabetes*.

DOG BITES.—See *First Aid in Accidents and Disease*, Sec. 5.

Dropsy, Symptoms

DROPSY (*Hydrops*).—Dropsy is an excessive accumulation of clear watery fluid in any of the tissues or cavities of the body. According to its location and character, it is variously termed anasarca, ascites, edema, hydropericardium, hydrothorax, etc. Dropsy or hydrops is not a disease of itself but is a symptom of some other general condition and may be due to a disease of heart, lungs, liver, or kidneys. Its chief symptom is a general swelling caused by the escape of the serum or watery base of the blood from the blood-vessels into the lymph-spaces of the tissues or into cavities.

These dropsical swellings usually can be relieved by proper treatment. As they are brought about by the impairment of the function of one or more of the main organs, attention should be given chiefly to the causative factors. For Dropsy of Brain, see *Hydrocephalus*. See also *Anasarca* and *Hydropericardium*.

Dropsy, Treatment

Treatment. If a disease of heart, lungs, liver or kidneys is causing the dropsical symptoms, the detailed treatment prescribed for that particular disease should be followed closely. In addition, however, the instructions given herewith, if followed strictly, unquestionably will help to bring about a change for the better

within a short time. Abstinence from salt in any form is very necessary in treating dropsy.

A fast is indicated first of all in treating a complaint of this nature, preferably Complete Fast No. 1 for one or two days, followed by Complete Fast No. 2 to be continued for three to twenty days, depending altogether on the weight, strength and general vitality of the patient. During the fast if the dropsical swelling is being gradually reduced and with the reduction there is an increase in the strength and endurance of the patient, it is certain that the fast is of decided benefit. Sometimes there is a steady loss of weight due to loss of flesh and not of the fluid it is desired to get rid of. In this case the fast cannot be continued very long.

One must remember also that while there often is a general lack of energy during a fast, a trial of strength often will prove that the patient has more endurance and more strength than he had before.

If the muscular energy seems greatly reduced, though there is a distinct improvement in the reduction of the swellings, then Partial Fasting Routine No. 8 may be used for a few days, followed by Partial Fasting Routine No. 10. Use the fast-breaking routine adapted to the length of the fast, though the milk diet is not indicated in this complaint unless it is taken in bed. If it is convenient for one to take Milk Diet No. 2 and remain in bed for the entire period, then he may expect good results from this routine. If it is inconvenient or otherwise impossible to take the milk diet in bed, then, following the breaking of the fast, one may adopt Limited Diets Nos. 2, 3, 4 and 5, each for one day.

Dropsy,
Diet in

After experimenting for one day with each of these limited diets, one may select and follow the one which seems to be the most agreeable or continue using two or more of them if preferred, for several days. After this the patient may gradually resume his ordinary diet, though using the greatest possible care not to overeat and to balance the meals or daily diet properly.

Remember that the drinking of water is not the cause of dropsy, and should one neglect to drink sufficient water the symptoms may become more serious. One should drink whenever one thirsts, but should not force down large amounts of water. When on the milk diet, however, little or no water will be required. Remember, also, that in treating dropsy no salt should be allowed in the diet.

Dropsy,
Water Not
Cause of

If the patient is fairly strong Special Manual Treatments 11 to 16 and Corrective Exercise Treatments may be employed daily, though if the patient is weak Special Manual Treatments 1 to 10 may be used in the morning and a hot abdominal pack in the afternoon.

A vitality-building routine suited to the patient's needs should

be followed closely day after day, especially including the air-baths, sun-baths and dry friction baths called for. Every additional scientific aid should be sought, even including studies of the heart, glands and blood chemistry.

Walking is recommended for this difficulty provided it does not materially aggravate the symptoms; that is, if it does not considerably increase the swelling. If walking does seem to aggravate the trouble of course it should be avoided. Standing still on the feet or slow walking is likely to aggravate the disorder. Walking at a fair pace, unless it is too much of a strain, promotes the circulation in such a way as to relieve the trouble considerably, as in many cases it is caused partly by impeded circulation.

**Dropsy of
Pregnancy**

Dropsy in Pregnancy is so common a complaint that some people regard the swelling of the feet and the ankles as one of the more or less normal characteristic symptoms of pregnancy. During gestation there naturally is an unusual demand upon the kidneys if the woman is not in vigorous health. General constitutional building up, as a rule, is all that is necessary to overcome the difficulty under such conditions. But if the health is poor and the swelling pronounced, radical measures should be adopted to avoid the possible dangers of eclampsia during or following childbirth.

Convulsions at that time often are fatal; but danger of them may be lessened by arousing such activity as to have the skin do a large part of the work of the kidneys. Three or four hot baths (105 to 108 degrees) a week, each lasting ten to twenty-five minutes, according to the strength of the individual, but never prolonged beyond a definite sense of discomfort, will be effective in this way in all cases.

**Dropsy of
Pregnancy,
Treatment**

Hot-blanket packs, electric-light cabinet baths, and vapor baths, a wet girdle changed every two hours or so, and graduated cold-water applications once or twice a day also are valuable. Special attention, however, also should be given to dry friction baths and air-baths, in order to promote the utmost possible activity of the pores. Treatment of the various parts of the body affected by means of Special Exercise Treatments (See Vol. VI) will be advantageous to a certain extent; but at the same time one must rely chiefly upon constitutional treatment and measures to promote more perfect elimination. Special attention should be given to enemas and colonic irrigations.

Apart from pregnancy, when it is known that dropsical symptoms are the result of imperfect action of the kidneys these same measures for promoting activity of the skin, plus the dietetic treatment outlined, will be effective in reducing the swelling.

An outdoor life is advised, wherever possible; but wide open

windows when indoors are to be insisted upon if the patient cannot spend his or her time in the open.

In some forms of *ascites* or *abdominal dropsy* the amount of fluid in the abdominal cavity becomes so great as to produce serious symptoms, and relief must be sought by the operation of *tapping*, or drawing off the fluid by means of an aspirator or a trochar and canula. This usually is done only in cases of great necessity, as fluid drawn off in this manner is likely to be replaced quickly. The operation, of course, should be done only by an experienced physician or surgeon.

DROWNING.—See *First Aid in Accidents and Disease*, Sec. 5, also *Swimming*, Volume III.

DRUG HABITS (*cocaine, chloral, opium, morphine, etc.*)—Only those whose occupation and environment bring them in direct contact with the moral and physical weaklings of humanity can realize how terribly prevalent is the use of habit-forming drugs. These are the cause of the development of degenerate habits which frequently lead to insanity and death. It is shocking to note that the use of opium, morphine, cocaine, laudanum, chloral and other opiates is so common, a fact which undoubtedly is largely due to the nervous tension to which our present mode of existence more and more subjects us.

Drug Habits,
Prevalence

The result of this undue drain upon vitality and nerve force is to produce a craving for stimulation that will temporarily counteract the strain. Thus the causes provocative of a liking for alcohol and those that lead to the use of such drugs often are the same. Yet many other influences are responsible for the making of drug habitues, addicts, or what are known colloquially as dope fiends.

Drug Habits,
Causes

Curiosity—"Just trying it once to see what the effect is like"—has claimed its thousands, the constant search for new thrills, lack of will power, yielding easily to the temptations of other addicts, bravado—wanting to show oneself to be a "good sport" among a certain class of people, discouragements and continued bad luck, despondency, nervous excitation and exhaustion, disappointments, all have done their share in producing addicts. Large numbers of the criminal class are habitues; for it is by means of the "Dutch courage" produced by drugs, especially cocaine, that the gun-man and the gangster, usually cowards at heart, bring themselves to a condition where they have the necessary "nerve" to perpetrate their crimes. Such users teach the habit to others.

No matter how the habit originates, if it be continued it will obtain such hold on its victims that it will be next to impossible to check or break. The inevitable result is such damage to the body, the brain and the mental faculties that the victim's life is a living hell and a curse, happily terminated only by death.

The morphine and the opium habits have frequently followed the use of the drugs as prescribed by physicians for the relief of pain or other conditions. Formerly the use of cocaine often became habitual as the result of using proprietary catarrh remedies containing that drug. The manufacture and sale of such articles now is illegal. Chloral taken to induce sleep in insomnia commonly leads to an addiction. The victim continues the habit chiefly because he feels the craving for the effect it produces.

**Drug Habits,
Symptoms**

Symptoms. All of these drug habits are somewhat similar in their destructive influence upon both body and mind. Even the moral faculties suffer, particularly in the case of those who use cocaine, for no matter what their original character, they gradually reach a condition in which the last vestige of moral sense is completely obliterated. Much crime is due to the use of these drugs.

Drug victims lose their appetites for food. They cannot sleep. They lose both flesh and strength and present a miserable appearance. Sometimes they have fainting spells. There are impairments of sight and hearing, a sense of anxiety, a loss of memory and other severe mental disturbances, culminating in dementia. Upon being deprived of the drugs, which they have come to "love" and to believe indispensable, all of these symptoms are greatly intensified and the victims often become violent and attempt suicide.

**Drug Habits,
Treatment**

Treatment. The treatment is substantially the same in the case of all of these drug habits, the first step being to deprive the patient of the poison. Because of the violence of the symptoms which usually follow this measure, the victim should receive great care. In cases of mania, complete immersing the patient in a warm bath for two or three hours is suggested to quiet the nerves. If necessary, arrangements should be made to strap him in position for this treatment, placing him in water at 103 to 105 degrees for ten minutes, then reducing the temperature to that of a neutral bath, 95 to 98 degrees, for the rest of the time. Ice packs or cold compresses applied to the head or the back of the neck at the same time, or a cold affusion to the cervical spine, would be of advantage.

It often is thought that a drug habitue is best cared for in an institution; but unfortunately the methods of treatment in such places are not always satisfactory. The chief advantage of institutional treatment is the greater possibility of withholding the drug from the patient, yet this usually is just what is not done in institutions, the usual method here being a gradual weaning away from the drug. But if the patient is carefully watched and guarded, home treatment may be satisfactorily carried on by the methods herein described.

The gradual withdrawal of the drug is much recommended and may prove a satisfactory plan in many cases, for it does not produce the extreme depression that follows sudden discontinuance. Nevertheless, the latter plan may be recommended in most instances, for it will mean a quicker cure and prove to be easier for the attendants in the end. The violence of the symptoms following the sudden withdrawal of the poison will be so mitigated by the methods advocated in this encyclopedia that the usual conditions will not apply. By this method the habit is often broken absolutely and for good.

Partial fasting (as by Partial Fast No. 1) is the most valuable of all forms of treatment for overcoming the pathological condition of the body brought about by the habitual use of the poison. This gives the body an opportunity to readjust itself in a normal way and also hastens the elimination of any poison remaining in the body. The drug fiend has lost his appetite, but by means of an acid fruit fast will regain it in a fraction of the time that otherwise would be consumed in this process. Especially the mind will clear and gain in strength and much sooner he will find himself in possession of the moral impulse and the will to fight his habit. The fruit helps by appeasing the craving for the drug, overcoming some of the effects and aiding the patient to regain his morale.

Drug Habits,
Partial
Fasting in

Because of the deplorably weakened condition of the body and the emaciation caused by the drug, an extended partial fast may not be possible in the beginning. But in any case the duration of this part of the daily routine will be governed by the condition of the patient. If the patient still has sufficient vitality, a fast up to one week's duration following a few days of the fruit diet will be a good plan in many cases. Enemas and colonic irrigations are of great value in cleansing the system of toxins generated in the large intestine.

The milk diet should follow the fruit fast or the water fast as the most perfect means of building up the weakened and disordered body. Milk Diet No. 1 is recommended, though after gaining normal weight on this routine Combination Milk Diet No. 2 or No. 3 for several weeks is advised. This then may be followed by a diet chiefly of uncooked foods, varying on different days between Fruit and Nut Diet No. 1, Cereal Diets Nos. 2 and 3, and Salad Diet No. 6.

Drug Habits,
Diet in

By way of special treatment, attention should be given to the nerves. The warm bath in case of mania has been referred to; but in other cases where there is much apparent nervous excitement, a neutral bath (95 to 98 degrees) lasting one hour is recommended. This probably will not be necessary for more than a few days. After that, or from the beginning, if the patient

Drug Habits,
Special
Treatment

is sufficiently vigorous, a combined cold half-bath and spinal affusion may be recommended. The patient should be rubbed while in the half-bath (seated with legs and hips immersed in water at 80 to 85 degrees), continued for ten minutes, while two or three times during this bath water at a temperature of 55 to 65 degrees should be poured on the back of the neck and down the spine.

If this treatment is not given, then at least cold compresses should be placed at the cervical spine and the back of the head for twenty minutes two or three times during the day. The warm baths, when given, should be followed with a quick cold douche or ablution. Graduated tonic baths (starting at tepid and reducing two degrees or so each day) are of great value, also.

The patient should adopt a vitality-building routine suited to his strength. Each evening he should be given Special Manual Treatments 1 to 10, always preceded with the application of a hot spinal pack. More vigorous corrective exercise treatment should be given if he is in a condition to receive it, or as soon as he improves to that extent. Pure, fresh air and sunshine are essential. If the patient follows this general scheme of treatment he soon will regain the mental stamina necessary to encourage him to combat his habit. What is more, as his body gains strength and vitality he will feel the craving for stimulation less and less.

DRUNKENNESS.—See *Alcoholism*.

DUMBNESS.—Dumbness may arise in the case of little children through progressive deafness (See *Ear, Disease of*), or it may be present because of a deafness existing from birth, whether inherited or congenital.

In the case of adults apoplexy (which see) may lead to a temporary loss of speech. But dumbness being in many cases a symptom of grave constitutional disturbance, its cause should be sought in the general physical condition.

Dumbness,
Causes

Recent researches have shown there is a definite connection between dumbness, as the result of accident, and right and left-handedness. As we know, there are two speech centers, one in either hemisphere of the brain; yet only one of these centers ordinarily is utilized—the left brain-center in right-handed persons and the right brain-center in left-handed persons.

It has been thought that the early development of one hand and the side (usually the right) has developed one hemisphere only; hence the other remains dormant and inactive. At all events, it has been proved that injury to the hemisphere corresponding to the hand habitually used for dexterous movements renders a person completely dumb, though the same center on the opposite side of the brain is perfect and capable of development. From

this fact, Dr. Hanna Thomson and other brain specialists have drawn the conclusion that only one half of a person's brain is ever used; the other half being held "in reserve," as it were, in case of accident.

The practical deduction to be drawn from this is that all children should be trained from earliest infancy to be ambidextrous. If the right and the left hands are used alike, as they should be, this one-sided development will be avoided. It has been shown that, in such cases, injury to one speech center does not cause dumbness. The other center does the work. Even in cases where dumbness in a right-handed person has resulted in this way, the patient, if not too old, has been taught to speak again by making him use his left hand for everything—that is, making him left-handed, and thus right-brained. These are significant facts and should be kept in mind, in treating all cases of this character.

Dumbness,
Ambidex-
terity and

Where this unpleasant defect is brought about by constitutional causes, often it can be materially or wholly remedied by a general increase of vitality. For this purpose a vitality-building routine adapted to the strength of the patient should be selected and carefully followed day after day.

If the defect is due to disorders of the ear, then the patient should follow the instructions given for the treatment of ear diseases. One should remember, however, that ear diseases in nearly all instances are due to constitutional defects.

Special Manual Treatments 11 to 16 or Self-Applied Exercise Movements 1 to 6 would be valuable as a part of the general vitality-building routine to be adopted in the treatment of this condition, as they will actively stimulate the nerve centers. See also *Speech Disturbances*.

Dumbness,
Treatment

DUODENITIS.—Inflammation of the duodenum or first portion of the small intestines—a variety of enteritis (which see, also *Intestines, Diseases of*).

DYSENTERY.—Dysentery is an acute or a chronic inflammatory disease of the colon, manifested by a severe form of diarrhea, abdominal pain and tenesmus. The stools often contain mucus and blood. Medically, dysentery is classified into three forms: catarrhal, amebic and bacillary. The catarrhal form is merely a severe diarrhea, usually produced by the eating of contaminated food or drinking polluted water. The amebic form is seldom found outside the tropics. It is characterized by the presence of the *Entamoeba coli*. The bacillary form is blamed on the *Bacillus dysenteriae* of Shiga.

Dysentery,
Symptoms

From the standpoint of natural methods of treatment it does not matter which form is present. The symptoms indicate that poisons are in the intestinal tract and must be eliminated, whether

they come from food or water alone, or these plus germs. Chronic dysentery occurs only when the acute or first attacks have not been properly treated. Exciting causes in various cases may be warm climate or hot weather, bad hygienic surroundings, exposure to cold and wet and ingestion of irritating food.

Dysentery, Catarrhal, Symptoms *Symptoms. Catarrhal dysentery.* Moderate fever (101 to 103 degrees), abdominal pain, tenderness over the colon, constant desire to defecate, tenesmus, prostration and many small stools containing mucus and blood. Recovery within seven to ten days is the rule.

Dysentery, Amebic, Symptoms *Amebic Dysentery:* Occasionally there are prolonged mild attacks, the symptoms being indigestion, colicky pains and slight diarrhea. The parasites in the stools determine the diagnosis. While most cases recover, some develop into chronic cases. In most cases the disturbance is acute, being manifested by fever, abdominal pain, vomiting, frequent bowel discharges with mucus and blood, tenesmus, great weakness and emaciation. There may be death from exhaustion or a chronic diarrhea may slowly develop. In fact, a chronic form is likely to develop in any case, regardless of the mode of onset. When this occurs there develops a continuous or intermittent diarrhea. In addition to mucus and blood in the stools there may be pus also. Tenesmus often is slight. There are discomfort in the abdomen, fever in the afternoon and in time a marked anemia and emaciation.

Relapses are common even in those cases which respond favorably to the usual medical treatment—simply because the real cause has not been removed. Abscess in the liver or involving both the liver and the lung is the usual cause of death. Sometimes death results from bowel perforation due to ulceration, peritonitis from the same cause, intestinal hemorrhage, or scar contraction of the bowel.

Dysentery, Bacillary, Symptoms *Bacillary Dysentery:* This form begins acutely. Often the symptoms are severe. A false membrane or gangrenous shreds may appear in the stools in addition to mucus and blood and there usually is severe tenesmus. The temperature may be as high as 102 or 103 degrees. There is pronounced toxemia in this form, often manifested (in addition to the frequency and nature of the stools) by general pains, delirium and stupor. Rapidly weakness and emaciation develop. The mortality in some epidemics is as high as 40 per cent., death usually being due to exhaustion. There may be mild attacks of this form, in which the symptoms may subside within one to three weeks from the onset. The disease becomes chronic in some cases.

Dysentery, Treatment *Treatment.* At first symptoms Complete Fast No. 3 should be immediately instituted, using hot water, previously boiled unless

strictly pure, for drinking. This may be flavored with lemon juice and should be so flavored as soon as it becomes evident that the attack is a genuine dysentery. Full hot salt-water enemas may be frequently given. A cold abdominal pack also may be given daily, especially if there is fever. If the patient becomes very weak, however, this should be changed to a hot pack. Rest in bed is necessary, if comfortable to the patient, and plenty of fresh air should be supplied.

This treatment should be continued until the acute symptoms subside, better still to fast for a day or two longer. Use Fast-Breaking Routine No. 5, beginning with vegetable broths (as in Vegetable Broth Diet No. 3 or 4) and after a day or two changing to cereal gruels. Regardless of the length of the fast, this routine should extend over three or four days. If good milk can be obtained, this should be soured and used thereafter as directed in Milk Diet No. 6 or No. 5.

If milk cannot be obtained, the first meal should consist of stewed fruits and the second of cooked vegetables. On the second day raw vegetables may be added and on the third day raw fruits. This diet may be continued for a week, after which other natural foods may be added, observing care not to overeat. The enemas are to be continued as necessary, gradually reducing the temperature and quantity of water used. The patient should be allowed plenty of time for recuperation, resuming exercise very gradually. A gentle stimulation of the nervous system, such as given by alternate hot and cold spinal packs or Special Manual Treatments Nos. 1 to 16, will be of value after the fast is broken. (Vol. VI.)

In tropical countries where dysentery is most common prophylaxis (prevention), through sanitation and careful habits of living, is highly important.

DYSMENORRHEA.—Difficult or obstructed menstruation. See *Menstruation*; also Volume IV.

DYSPEPSIA.—A general term applied to faulty digestion. It sometimes is described as a *consciousness* of the activities of the stomach. By that is meant that normally the process of digestion is carried on with nothing to call one's attention to the functioning of the stomach; but if anything interferes with the normal digestive process certain symptoms arise which make one conscious of some abnormal condition in this organ.

Dyspepsia,
Causes

The disease must be considered more as a condition of functional (nervous) disturbance of the glands of the stomach than as a disease state of this organ. The secretive and absorptive function of these glands may be impaired in many ways—through overeating, eating of unwholesome or badly cooked food, insuffi-

cient mastication, anemia, too little exercise, irregular or hurried meals, and a deficiency in the character and quantity of the secretions of the glands due to various nervous influences.

Dyspepsia is an ailment the growth of which is slow in character, total ignorance of or wilful disobedience to hygienic laws for a term of years often being necessary to produce a condition of chronic dyspepsia. Constipation, often in an aggravated form, usually must be present before the functional activity of the stomach can be seriously impaired.

**Dyspepsia,
Symptoms**

Symptoms. As the ailment develops, discomfort is experienced after meals, the stomach becomes distended and there sometimes is acute or nagging pain. Further symptoms are flatulence, abdominal distention, heartburn, and eructations of an acid character. There often are nausea and vomiting (though the latter is not a pronounced symptom) and also loss of appetite. In some cases the pain is likely to be continuous and severe, especially in acute dyspepsia, while in other cases it occurs in paroxysms of greater or less severity. In mild cases there may be simply a feeling of fullness and discomfort in the stomach.

Because of the abdominal distention there is occasionally some degree of heart disturbance, manifested chiefly by palpitation. Owing to toxic absorption from the bowels, nervous symptoms may arise, such as headache, neuralgic pains, sleeplessness and dizziness. As digestion becomes increasingly difficult, the pain experienced after eating will cause proportionate discomfort.

The difficulty often experienced in the cure of a case of chronic dyspepsia of long standing is due primarily to the toxemic condition of the blood. This reacts upon and impairs the chemical efficiency of the digestive juices. Thus almost any combination of food, however digestible in theory, may prove in practice a further addition to the existing burden.

**Dyspepsia,
Treatment**

Treatment. When tobacco, coffee or tea, alcohol or drugs are the underlying causes of dyspepsia, these habits, of course, must be discontinued. In cases due to nerve depression or irritation, mental treatment through suggestion and the practice of mental and physical relaxation are important and spinal manipulation may be required. (See Vol. VI.) Otherwise, the treatment is the same in all cases. There will be taken up here only the physical treatment. Remarkable results may be obtained in the treatment of this ailment by the proper combination of fasting and the milk diet. There have been recoveries that might almost be termed miraculous as the result of these methods in this complaint.

First of all Complete Fast No. 2 should be followed for as long a period as the patient can abstain from food without serious loss of strength. The patient should not continue the fast until

it becomes necessary for him to remain in bed, though in some cases where he appears to be greatly weakened and the fast has not yet been continued long enough to be of any real benefit, then Partial Fasting Routine No. 1, 2 or 3 may be followed. The longer the fast is continued the greater will be the benefit, keeping in mind at the same time the necessity for being mentally satisfied as to the value of the fast and also the necessity for not allowing the bodily energies to become too greatly depleted.

If one is of normal weight, of course, the fast can be continued for a longer period than if he is thin. The average dyspeptic patient, however, usually is more or less emaciated, and in cases of this kind naturally the fast should not be continued for more than five to ten days.

In this disease the stomach is in special need of a fairly long rest. Not only does the organ thus get a chance to be thoroughly cleansed, but it is put in condition to produce a superior quality of blood from the nourishment furnished. Especially is this true when the milk diet is used. The fast-breaking routine adapted to the length of the fast and Milk Diet No. 1 are advised. In cases where the milk diet cannot be followed, the patient may adhere to the other routine referred to in the fast-breaking routine adapted to the case.

Dyspepsia,
Diet in

After following this routine, however, if the patient does not feel a decided improvement, then he may use Milk and Fruit Diet No. 2, varying it with No. 4 for a day occasionally, depending upon the appetite.

In a case of such extreme emaciation that the patient cannot endure a fast of sufficient length to give his stomach the necessary rest, Alternate Fast No. 5 may be of greatest advantage. If fasting does not cause too great a loss of vitality, it is better, however, to fast for five to ten days or longer in the very beginning. A fairly large warm enema should be taken daily during any fast.

The Special Manual Treatments and Self-Applied Movements described in Vol. VI would be of special value in the treatment of this disease. If some of these treatments can be given daily, the amount depending on the patient's strength, they will help materially in bringing about a decided improvement. Osteopathic treatments usually are beneficial also. General and abdominal massage will be definitely helpful, especially in case of nervous dyspepsia. Local abdominal heat, by any convenient means, will be soothing and of definite benefit, as will hot spinal compresses or other spinal heat. The cold abdominal pack at night also is beneficial. Graduated tonic baths will prove of great value in all cases.

Have the patient follow each day the instructions given in the

vitality-building routine adapted to his strength. This is especially important in this disease. What is needed first of all is additional vitality. A distinct improvement in the quality of the blood is essential.

Dyspepsia,
Exercises in

The stimulation of the entire vital organism that comes through exercise will bring a change for the better that often is amazing in character in chronic dyspepsia. Walking especially is a valuable exercise in the treatment of this disease. If the patient will walk each day until he is fairly tired it will be of very great value, provided adequate rest and relaxation follow. Deep breathing exercises also will help materially, as these furnish a mechanical stimulus to digestion that directly reaches the affected organs.

Upon resuming the use of solid foods, it is necessary that the greatest care be observed thoroughly to chew every morsel of food consumed. Thorough mastication of all solid nourishment is imperative in dyspepsia. As constipation necessarily will retard the progress of cure, bran, bran gems, mineral oil or olive oil, or prunes should be used regularly if necessary to obtain two or three bowel evacuations daily.

Dyspepsia,
General
Treatment

The drinking of hot water an hour before meals is palliative and helpful in many cases, but it is of temporary benefit only. One should not allow himself to reach a condition in which he will depend upon this use of hot water. The cure depends upon a radical improvement of the condition of the stomach and of the entire body through the methods referred to above. Great care should be used never to drink iced water. Drinking water should be only moderately cool. Tea, coffee, alcohol and soda fountain beverages must be avoided, as must be drinking of large amounts of water or any other fluid with meals.

Ear Dis-
eases

EAR, DISEASES OF.—Diseases of the ear are conveniently divided, for the purpose of description, into acute and chronic forms. Both varieties generally are caused by previous inflammation of the nose and the throat.

Ear, In-
flammation
of, Causes

Inflammation of the Ear (Otitis) is the result of extra elimination being carried on by the skin or mucous membranes of the ear. The inflammation may affect the external, middle, or internal ear. External ear inflammations generally take the form of dermatitis, pimples, boils or abscesses. Inflammation of the middle ear, called *Otitis media*, affects the mucous membranes and sometimes the bones and is the most common form. Inflammations of the internal ear and the mastoid cells seldom occur except in neglected cases of otitis media.

These inflammations are all due to a toxemic condition of the body induced by wrong habits of living. They usually occur as an extension of another eliminative process already being carried

on in the nasal passages or the throat, such as a cold or pharyngitis, or as a complication of neglected or improperly treated cases of infectious fevers. Some cases result from infection through the eustachian tube brought about by swimming in impure water. Chronic ear inflammations may result from improperly treated acute cases or may be an extension of catarrh of the nose or the throat.

Symptoms. In acute conditions of the *external ear* or auditory canal there are severe pain, some swelling of the walls of the canal and in a short time a furuncle or boil appears as a small red swelling, extremely sensitive. The furuncle enlarges, points and discharges its purulent contents. Then all the symptoms abate and recovery takes place.

In acute inflammation of the *middle ear* there generally is some rise in temperature. There is great pain, which is worse at night. This pain often is spasmodic in character, and during the spasm is very excruciating. The ear-drum often is found to be bulging outward, the cavity of the middle ear being distended with a serous exudate. Acute purulent inflammation of the middle ear, which usually develops from the acute catarrhal form just described, will cause the entire side of the head to become painful, the pain being of a throbbing or beating character.

The symptoms of this form may be very severe. There are fever, rapid pulse, weakness, and prostration. Pus forms behind the ear-drum and if not freed by an incision it usually will soften and perforate the drum, discharging externally. As a rule the amount of pus is considerable and often is offensive. If any of these acute conditions of the middle ear are neglected they become chronic. Acute inflammation of the middle ear occurs as complication of several infectious diseases, such as scarlet fever, measles and influenza.

Perforation of the ear-drum is a serious injury, but not always as destructive of hearing as is generally thought. With proper



Ear In-
flammation,
Symptoms

The illustration shows the ordinary three-ounce soft-rubber bulb-syringe used to irrigate the ear or the nostrils or to give enemas to very young infants.

Ear, Roaring in



Syringing the ear in this fashion insures the out-flow of the fluid injected.

care the opening in the drum will gradually close and become obliterated and hearing will be restored.

For inflammation of the mastoid cells see *Mastoiditis*.

Roaring in the ears generally is due to excessive blood-pressure, congesting some of the inner blood-vessels. Often it may be relieved by standing up very straight, with the arms raised high over the head and taking deep breaths. A short fast should give

more permanent relief and prevent recurrence of the trouble.

If the roaring is due to a catarrhal condition of the inner ear or affection of the small ossicles or bones of the middle ear it may stubbornly resist all treatment, though often even in such cases decided relief or even complete correction of the disturbance may be brought about by proper methods.

Deafness not due to this chronic condition may arise from an obstruction in the external portion of the ear, the auditory canal. The most common form of such obstruction is excessive secretion of wax, the ear being blocked with this wax.

An inflammatory condition of the ear is likely to occur at all ages of life, but especially in the young. There are many variations of ear trouble, called by various names. It will suffice to say that when any symptom of disease appears in the region of the ear the preservation of the faculty of hearing depends upon prompt treatment.

Treatment. In simple acute inflammations of the middle ear the symptoms may appear to be local; but since the cause is a

general toxemia, constitutional treatment should always be used in addition to the local. If the case becomes complicated by infection and pus formation, fever usually sets in, so constitutional treatment is plainly indicated. Therefore, as soon as the ear begins to pain the diet should be limited to orange juice and water. As much water as the patient will take should be consumed, but the quantity of juice will be governed by the age of the patient, ranging all the way from one or two oranges a day for infants and four or five a day for children to eight or ten daily for adults.

An enema should be taken daily while on this diet. Deep breathing of fresh air is especially important, and the sun should be allowed to shine on the ear as much as possible without severe sunburn. This not only will relieve pain but help check the inflammation.

If sufficient sunlight is not obtainable, a hot-water bottle, hot sand-bag, hot salt-bag or other means of applying dry heat may be used for the relief of pain. In the milder cases these measures usually will correct the trouble in a few days. A head steam bath usually will give pronounced relief in these cases. This may be taken while seated astride a chair seat facing the chair back, the head resting on the arms folded across the chair back, a vessel of steaming water placed on another chair seat beneath the face, and a blanket over the head and entire body and reaching to the floor. In most cases this is of greater benefit than the entire



Ear-ache, as well as facial neuralgia and sinus trouble, may respond to the application of the hot-water bag. In most cases it is found beneficial to use the bag in a reclining position with the painful region resting directly upon it.

Ear Disease:
Heat in

steam bath, though the latter is of value also. After either a local or a general steam bath the head and the face should be splashed with cold water and a friction cold sitz-bath should follow immediately, with thorough drying of all moist parts. If the general steam bath is taken it is necessary, of course, to follow with a general warm and cool or cold bath.

If the symptoms become more severe and there are signs of pus formation, the complete fast should be adopted except in the case of infants, when diluted orange juice may be allowed. The other measures are to be continued as above described and warm oil may be placed in the external ear canal. If fever develops, sunlight applications should not be used, though dry heat may be employed. In these cases the ear-drum usually ruptures spontaneously and the pus discharges outwardly. If it does not, and the severe pain continues for more than twelve hours in the case of a child or twenty-four hours in the case of an adult, it is well to consult a surgeon. He may advise the perforation at the drum, though this should be adopted only as a last resort.

When the drum has been perforated, either naturally or artificially, *nothing should be placed in the external ear canal*—neither oil nor antiseptic solutions nor cotton to collect the discharge. The latter should simply be mopped off as it appears at the ear opening. Also, the patient should lie in such a position that drainage is not interfered with. The pain usually subsides after drainage is established and the general symptoms abate soon after.

It is well to continue on the fast until the discharge has ceased; but if this requires too long a time for the patient's weight and strength, especially in the case of children, the milk diet may be adopted a day after the fever disappears and following the proper fast-breaking routine. Milk Diet No. 3 is to be preferred, limiting the quantity according to the age of the patient. The eliminative action of the milk diet will continue the healing process, as it does in the case of abscesses.

Pus formation in the middle ear amounts to the same thing as an abscess. Even if the fast is continued until the discharge ceases it would be well to follow with the milk diet. Special attention should be given to a vitality-building routine suited to the strength of the patient, as all these cases lack vital energy. Sun-baths are of particular value.

If the case is very severe or has been neglected so that the mastoid cells become affected the same treatment will apply, and usually will avoid the necessity of an operation. A continuance of the fast is especially important in these cases, at least until most of the discharge ceases. After the fast-breaking routine it would be best to employ a solid-food diet mostly of raw fruits

Ear Perforation, Treatment

Ear Diseases, Pus Formation in

and vegetables, with perhaps small amounts of buttermilk or nuts, though young children may take milk and oranges as already directed.

Occasionally, even with good care, in cases where the toxemia is high, the inflammation spreads rapidly; so if the symptoms of high fever, great pain and impairment of brain function indicate that the infection in the mastoid is spreading to the brain, a physician should be consulted. He may advise an operation. But even such a procedure does not obviate the need of the constitutional treatment. Patients often are inclined to seek operation early and to neglect the general treatment. It must be remembered that operations do not remove causes, so until such removal is made there is every possibility of a recurrence. When the mastoid cells on one side have healed those on the other side are likely to become affected. And even with these cells removed on both sides the ears may become inflamed. However, a case cannot develop severe symptoms if the proper treatment is started early. Moreover, right habits of living will obviate the need of such inflammations, which will not occur.

Ear Diseases
Mastoiditis
in

In the treatment of *chronic diseases* of the ear one must depend entirely upon constitutional upbuilding and increased vitality as a means of securing results.

When deafness is due to accumulation of *ear-wax*, this must be removed before one can expect results of any importance. The removal usually is easily accomplished by placing a drop or two of warm (not hot) olive oil in the ear and after a few minutes gently syringing the ear with warm water.

If the sufferer is in possession of average vitality the following treatment for chronic diseases of the ear is suggested: Complete Fast No. 2 for five to ten days, though if there is a discharge from the ear it usually is far better to continue this fast until the cessation of the discharge. The fast-breaking routine adopted should be suited to the length of the fast, with the adoption after the third or fourth day of Milk and Fruit Diets No. 1 and No. 3, alternating each day, though if either routine seems to be more appetizing than the other it is just as well to adhere to the one that pleases most. Combination Milk Diets Nos. 2 and 7 also may be used in the treatment, following the previous diets.

Ear Diseases
Diet in

Of course, it will be necessary that the patient select a vitality-building routine adapted to his strength. He should follow the instructions given concerning it strictly and persistently. Long walks are of special value in assisting the functional processes to make a superior quality of blood. The Special Manual Treatments or the Self-Applied Exercise Movements described in Volume VI could be taken once daily with material benefit.

One must remember that chronic diseases of the ear can be remedied only through the improvement of the blood. Therefore, the more thoroughly one can purify this life-giving fluid, increase its vitality, power and mysterious force, the quicker one may expect results from the treatment.

It is especially important in the treatment of these complaints to avoid overeating, after returning to the use of ordinary foods. If one will confine his diet to only what is actually necessary to nourish the body and never eat beyond this amount, far more rapid results may be expected than when overeating is practiced. In many instances this may mean getting up from a meal feeling somewhat hungry, but the reward will be well worth the efforts.

ECLAMPسيا, INFANTILE.—See *Convulsions, Infantile*.

Eclampsia,
Uremic,
Causes

ECLAMPسيا, UREMIC.—Convulsions accompanying acute uremia, which is toxemia resulting from more or less sudden failure of the kidneys to eliminate the toxins as they should. These convulsions also may result from suppression of the urine. This condition seldom occurs except in those who have had inflammation of the kidneys for some time; the inflammation, of course, being due to improper diet and other wrong habits of living, especially the use of alcohol. See *Uremia*.

Eczema,
Causes and
Symptoms

ECZEMA.—This inflammatory skin eruption, usually more or less chronic, may appear on any part of the body. It may take the form of simple redness of the skin, or appear as scales, pustules or fissures. Intense irritation and itching accompany this disease when severe in form. Occasionally a discharge takes place from the inflamed area. The eruption that appears in many cases of fever generally is eczematous in nature.

This disease usually is constitutional, though it sometimes is due to local influences. Among these are the rubbing of clothing or bandages, chafing and scratching in cases where some parasite is present in the skin or upon it. Such skin conditions as just mentioned, however, are not true eczema. Some of the general conditions causing eczema are gout and stomach and intestinal disturbances. No matter where the eczema may appear, it must be remembered that the poisons eliminated through these skin manifestations are supplied by the blood; therefore, eczema is really a blood or constitutional disease, so it must be treated as such.

Eczema,
Treatment

Treatment. The ordinary methods of treating this trouble, with external applications alone, will be inefficient in most instances. Such treatment simply heals the surface sores without removing the constitutional cause.

Realizing that this is a constitutional difficulty, one may proceed with a blood-purifying process, commencing with Complete



PLATE 99. The form of eczema here shown in adult and child is the squamous form, with redness, scaling, watery discharge or weeping and with itching.

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Fast No. 2. This fast should be continued for five to twenty days, depending altogether on the vitality and weight of the patient. If one carries considerable surplus weight, then a longer period than mentioned would be much more satisfactory; though even when one is possessed of surplus fatty tissue, if the vitality is low a long fast must be taken with care. If one is under normal weight then a shorter fast would be more satisfactory, indeed necessary. The fast should be broken in accordance with the fast-breaking routine adapted to the length of the fast.

In practically every instance this fast may be followed with Milk Diet No. 1 with benefit. The exclusive milk diet seems to be peculiarly advantageous in the treatment of this disease. Many cases have been cured or greatly improved by using the milk diet following a fast, where practically every known treatment had been used previous to trying this routine.

Eczema, Milk
Diet in

If the milk diet cannot be followed, or after it has been followed, the diet should be largely of salads, cooked green vegetables, fruit, and milk in some form. Salt should be avoided.

If the skin is especially dry and irritated while taking this treatment, olive oil may be applied with advantage. Sun and air-baths are highly recommended, and should be taken daily whenever possible. In fact, the deeper the pigmentation or tanning due to sun-baths (either natural or artificial) the more one will be relieved of the eczematous condition and the more rapid and permanent will be the cure.

Eczema
Treatment

Regularity of the bowels must be insured, but in using enemas for this purpose gradually lessen the quantity of water each day, that you may be able finally to compel the bowels to act without this particular stimulus. Colonic irrigations are of unestimable value in this condition.

Steam baths or electric-light cabinet baths may be used two or three times a week to advantage in this disease. They are especially valuable while on the exclusive milk diet. Neutral baths (95 to 98 degrees) lasting from thirty minutes to an hour, may be taken daily while on the milk diet. Olive or coconut oil may be applied to the skin immediately after, if the water seems to irritate.

Long walks are of special value and should be insisted upon, though while on the milk diet these walks should be confined to the early morning, previous to beginning the milk. Frequent shorter walks, of course, will be necessary in some instances.

Care should be used in connection with friction or other baths to avoid irritating the inflamed surface. If one can react quickly with a feeling of warmth from cold water, such baths may be taken to advantage, though it must be reiterated that too much

treatment must be avoided. When taking sun-baths, whenever possible, a short cold shower or cold immersion may be taken to advantage. For instance, if during the summer one has an opportunity to take a sun-bath for a few minutes, then a bath in ocean or lake, followed by another sun-bath, going through this process two or three times each day, it would be greatly helpful. In connection with these measures a general vitality-building routine adapted to the strength of the patient should be followed.

Eczema,
in Infants

There is a form of eczema in infants, especially those bottle-fed. The food should be reduced, and scrupulous local cleanliness should be observed. The bowels should be kept open by an enema, if necessary. But the child may be several months fully "outgrowing" the eczema, even with the best of care. Hence under no circumstances should the diet be reduced so much as to prevent gain in weight, or the general health and vitality of the child may suffer.

EDEMA.—See *Dropsy*.

EDEMA, ANGIONEUROTIC (*Giant urticaria*).—See under *Hives*.

(Continued in Volume VIII.)

